REPUBLIC OF MAURITIUS
MINISTRY OF FINANCE AND ECONOMIC DEVELOPMENT

FINAL REPORT

March 2016

MAURITIUS

PUBLIC ENVIRONMENT EXPENDITURE REVIEW PEER 2011-14

PAGE PARTNERSHIP FOR ACTION ON GREEN ECONOMY

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Figure 1. Map of the Republic of Mauritius

Source: The World Bank

This report has been prepared by a team of consultants including Dr. Gaston GOHOU, Team Leader/ Expert in Public Finance Management and M. Madoo DESHA, Expert in Environment, Climate Change and Sustainable Development.

Contact:

Dr Gaston GOHOU | ggohou@cessinstitute.org | phone: +1 418 264 1970 | +1 418 204 2120 | CESS Institute at 3055 Blvd Wilfrid-Hamel, suite 225, Quebec city, G1P 4C6, Quebec, Canada | cessinstitute@cessinstitute.org | tel +1418 914 2120 | Fax: + 1 418 914 3530

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Acknowledgements

The Ministry of Finance and Economic Development (MOFED) thanks all the persons and institutions that contributed to data and information collection during the preparation of this report.

MOFED would also like to thank the Partnership for Action on Green Economy (PAGE) for funding this review, and acknowledges the support of the United Nations Resident Coordinator's Office, Mauritius.

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Acronyms

AAP:	Africa Adaptation Programme
AFD:	Agence Francaise de Developpement
AG:	Accountant General
CEB:	Central Electricity Board
CEE:	Capital Environmental Expenditure
COFOG:	Classification of the Functions of Government
CPEIR:	Climate Public Expenditure and Institutional Review
CWA:	Central Water Authority
DRR	Disaster Risk Reduction
EEMO:	Energy Efficiency Management Office
EPA:	Environmental Protection Act
FAREI	Food and Agricultural Research and Extension Institute
FDI:	Foreign Direct Investment
FIT:	feed-in-tariffs
GDP:	Gross Domestic Product
GHG:	Greenhouse Gas
ICT:	Information and Communication Technology
IIED	Institute for Environment and Development
INDC:	Intended Nationally Determined Contribution
IPCC	Intergovernmental Panel on Climate Change
IPPM:	Investment Project Process Manual
JICA	Japanese International Corporation Agency
LNG:	Liquefied Natural Gas
LPG	Liquefied Petroleum Gas
MAIFS	Ministry of Agriculture and Food Security
MARENA	Mauritius Renewable Energy Agency
MEHRTESR	Ministry of Education, Human Resources, Tertiary Education and Scientific Research
MEPU	Ministry of Energy and Public Utilities
MID:	Maurice Ile Durable
MIDSAP:	MID Strategy and Action Plan
MoESDDBM:	Ministry of Environment Sustainable Development, Disaster and Beach Management
MOFED	Ministry of Finance and Economics Development
MREPU	Ministry of Renewable Energy and Public Utilities
MTEF:	Medium term expenditure framework
NCCAPF	National Climate Change Adaptation Policy Framework
NCCSAP	National Climate Change Strategy and Action Plan
NDRRMC:	National Disaster Risk Reduction and Management Council
NDU:	National Development Unit
NEAP:	National Environmental Strategy and Action Plan
NEC:	National Environment Commission
NGO	Non Government Organization
NPCS	National Parks and Conservation Service
ODI:	Overseas Development Institute
PAC:	Pollution abatement and control
PAGE:	Partnership for Action on Green Economy
PBB:	Programme-Based Budgeting
PEE:	Public expenditure on environment

PEER:	Public environmental expenditure review
PEI	Poverty Environment Initiative
PMO:	Prime Minister's Office
PPC:	Project Plan Committee
PSIP:	Public Sector Investment Programme
PV	Photo Voltaic
R&D:	Research and development
REE:	Recurrent Environmental Expenditure
RM:	Resource Mobilization
SCE	Senior Chief Executive
SIDPR:	Sustainable Integrated Development Plan
SIDS:	Small Island Development State
SNC:	Second National Communications
SOEs:	State owned enterprises
SSDG:	small scale distribution generation
SWH:	The solar water heater
TGE:	Total Government Expenditure
TGEE:	Total Government Environmental Expenditure
TVET	Technical and Vocational Education and Training
UN:	United Nations
UNFCCC:	United Nations Framework Conference on Climate Change
WMA	Wastewater Management Authority

Executive summary

Mauritius, in promoting sustainable development as a means to address its vulnerabilities and opportunities as a Small Island Development State (SIDS), has recognized the necessity to enhance the resilience and adaptive capacity of the country. This report, which was based on a process of public environmental expenditure review (PEER) outlines an assessment of the current effectiveness of planning and budgetary processes and the capacities of all stakeholders involved. It led to recommendations on capacities required for strengthening and improving of both processes and people.

The PEER evaluated how environmental expenditures are integrated into the national medium term expenditure framework (MTEF) and sector budgetary process. The review takes into account six key spheres of policy development, institutional structures and financial management.

The review covered the period between 2011 and 2014 and takes into account past and current environmental advancements in Mauritius. The methodology was built on primary and secondary data/information acquired through relevant documents, reports and much consultations and engagement of public officers. There were limitations imposed by the scope and short time frame of the process. Other challenges related to the necessity to create definitions of the boundaries of environmental expenditures and the availability of up to-date data.

Mauritius has built a strong and stable macro economic climate, which overtime showed signs of weakening resilience resulting in the adoption of reforms. These reforms initially paid off, but were further impacted by the global financial upheaval of 2008 reducing the effects of the reforms.

While the country has been relatively adept at managing its macro-economic framework, it realizes the necessity of increasing its fiscal efficiency and fiscal space, with which, to finance its ambitious development agenda and also the challenges it faces in a more competitive and less dynamic world economy.

Mauritius, like many other economies is being challenged with an aging population with ramifications for public spending, especially related to health care and pensions. While Mauritius has developed a strong economic foundation and weathered the storms of economic change, it is at another cross roads. It requires a second-generation of more transformational public sector reforms, to improve the efficiency, transparency and accountability of public investment management and improve risk management.

Macroeconomic stability is critical to stimulate investment, enhance production, create new jobs and accelerate sustainable economic growth. Government accountability and improved service delivery will benefit from increased efforts for citizen and civil society engagement and participation. This would be enhanced with more availability and easier access to information.

This report identifies a definition for environment public expenditure, reviews and assesses environmental ministries and institutions, their programs related to climate relevancy and responsibility to areas of environment and climate. It makes recommendations towards a more efficient approach to planning and budgetary processes, a sustainable environmental policy framework and related legislation necessary for the transition to a green economy.

There are three main ministries that carry most of the responsibilities for environmental and climate change activities within the government. However, a range of activities related to the environment, such as energy, water, sanitation, forestry, land use planning, terrestrial and marine bio-diversity are carried out by several other ministries.

This report reviews current levels of expenditure of the overall budget related to climate change and mitigation, provides a breakdown of expenditures by programs, key ministries and institutions and identifies the sources for this funding, including foreign grants. It also provides a comparison of similar expenditures in five other countries with similarities to which ministries spend most on environmental projects and what percentages relate to adaptation and mitigation.

The environmental expenditure in Mauritius, dominated by investments in water and sanitation infrastructure during the period 2011 and 2014, represents about 7% of the total government expenditure, and is about 1% to 2% higher than for other African countries. As a proportion of GDP, it varied in the range of 1.8% to 2.2%, and was within the range of 1.4% and 2.5% as recommended by the World Bank for developing countries (IIED). Comparatively, the percentage of public environmental expenditure was 0.8% for Mali and 1.2% to 2.5% for Mozambique in 2007, and 2.6% for the Republic of Bhutan in 2011-12 (ODI, 2008).

The Ministry of Energy and Public Utilities (MEPU) is by far the largest ministry in terms of environmental expenditure, representing nearly 46% of the total Government environmental expenditure in 2014.

The climate expenditures of Mauritius are mostly assessed as high or medium level of relevance, and the proportion for adaptation is of the order of 77 to 79%, while for mitigation it is around 23 to 21%, comparable to the breakdown for countries such as Bangladesh, Nepal and Samoa.

While a lack of detailed information made it difficult to make a reliable assessment of efficiency and effectiveness, it is evident that to strengthen these areas of public environmental expenditure it is necessary to improve institutional mechanisms for environmental management, resource allocation procedures and the capacity to mobilize resources from international funds. In house capacity needs to be built to develop projects and to create a skilled project preparation unit which has adequate resources and support.

This report, albeit limited by time and information, outlines the commitment of government to evaluate and strengthen its organizational base and government officers' capacity to transition Mauritius into a green economy. It demonstrates its willingness to self-evaluate in order to enact the changes required to make this transition.

As a result of this evaluation, the following recommendations are suggested to improve the public environment expenditure in Mauritius.

1. Revive the National Environment Commission (NEC) to ensure high-level engagement and credible policy guidance.

2. Accelerate the procurement process by further disseminating it across line ministries and departments and ensure that adequate training is provided to build officer capacity and develop more efficiency

3. Create mechanisms and procedures within the Climate Change Division to efficiently communicate and disseminate pertinent information to sensitize and create awareness across all economic sectors.

4. Strengthen the capacity of the staff in project management, especially the design of logical framework and the design of result chain

5. Develop a process and the procedures to evaluate all projects through the "lens of Climate Change" taking into account short, medium and long-term projections, risks and benefits for the country.

6. Promote decentralization of programs and projects to local authorities so that they too can deliver climate change benefits.

7. Create a framework that allows the identification of climate adaptation and mitigation projects that clearly defines the expected outcomes (economic, social, capacity building, environmental, etc.).

8. Establish a M&E system at the Ministry of Environment, Sustainable Development, Disaster and Beach Management.

9. Strengthen the capacity of the Resource Mobilization (RM) Unit at the Ministry of Finance and Economic Development (MOFED) with adequate resources and support.

1.0. Introduction

1. **Background**. Mauritius has been promoting sustainable development as a way to address its unique vulnerabilities and opportunities as a SIDS. One of the major opportunities for action to make possible the transition of Mauritius to a green economy is the buildup of resilience and the increase in adaptive capacity of the country.

2. As one of the specific areas of interest and capacity-building needs for technical and financial support from PAGE in 2014 and 2015, it is proposed to strengthen the planning and budgeting capacities of national stakeholders. This is done through a public environmental expenditure review (PEER), with a view to assess expenditure levels and strengthen the efficiency, effectiveness, and sustainability of public expenditure and institutional mechanisms on environmental management of the country.[1]

3. **Scope and Objectives.** The PEER reviews how environmental related expenditures are integrated into national Medium Term Expenditure Framework (MTEF) and sector budgetary processes. This review is set within the context of the national policy and institutional arrangements that exist to manage the response to environmental impacts in the Republic of Mauritius. Hence, the review takes into account six key spheres of policy development, institutional structures and financial management including:

i. An assessment of current policy priorities and strategies as these relate to environment;

ii. A definition of environment-related expenditures. The absence of a definition on environment-related expenditure constrains stakeholders in tracking resources allocated for financing associated actions. The PEER proposes an inclusive methodology and coding system to define and track environment-related expenditure that is appropriate in the Mauritian context.

iii. A review of institutional arrangements for promoting the integration of environmental priorities into budgeting and expenditure management; This consists of an assessment of the current institutional arrangements to identify where improvements could be made including the extent to which these arrangements are coherent with national development and inclusive green economic growth strategies and policies.

iv. A review of the integration of environmental objectives within the budgeting process, including the part of budget planning, implementation, expenditure management and financing. Actions related to the environment, targets and performance indicators proposed in the PBB and sectorial and national plans to obtain a clear picture of what has been planned and implemented is reviewed. This enables key Ministries and MOFED to estimate financial resources that are required to implement actions related to the environment and how much budgetary resources should be allocated to finance environmental expenditures

[1] The TOR limits the study to only two programs of the Government of Mauritius: (i) Environmental Conservation and Protection and (ii) Sustainable Development and Climate Change. However, the consultant team thinks that based on previous PEERs done, it will be more useful for the country to estimate the environmental experience for the whole country.

and investments. This will also identify whether more detailed costing exercises are needed within and/or across sector and across-cutting policy priorities and targets.

v. Budgetary allocation and tracking actual expenditure. The PEER reviews the financial management systems for allocating and spending environment-related expenditures with an aim to attempt to understand a trend analysis on both budgeted and actual expenditure.

vi. Establish a monitoring and evaluation mechanism as well as a tracking system. The PEER will review the budget and environment frameworks with a view to recommend associated finance related indicators for inclusion.

4. As stated in the TOR (refer to Annex 1), the objectives of this Public Expenditure Environment Review (PEER) are as follows:

i. Evaluate public expenditure in environmental management as the current fragmentation of funding and public institutions makes it difficult to provide a consolidated view;
ii. Examine the processes whereby policy is developed
iii. Analyze the effectiveness of expenditure allocation, disbursement and execution
iv. Develop a climate budget code so that expenditure on climate change mitigation and adaptation can be tracked;
v. Assess the outputs delivered and outcomes achieved through public expenditure on environment (PEE). Comparison of public expenditures of Mauritius environment with those of other countries, with similar level of development, and facing similar environmental challenges, will provide benchmarks to assess the efficiency of environmental finance in Mauritius.
vi. Provide concrete recommendations to strengthen the efficiency and effectiveness of public expenditure and institutional mechanisms for environmental management
vii. Identify resources and strengthen capacity to effectively tap into international funds which are being made available to address environmental issues

5. **Methodology**. The review period for this PEER covers the period between 2011 to 2014. It includes environmental expenditures for the relevant ministries. The methodology of this PEER is adapted from the Climate Public Expenditure and Institutional Review (CPEIR) methodology. Summaries of the PEER and CPEIR guidelines are provided in the Annex 2 and Annex 3 respectively. This methodology also takes into consideration past and current environmental finance advancements in Mauritius. The methodology is built on both primary and secondary data/information collections through various consultations.

6. The methodology to compute public expenditures related to environmental management included first a scoping exercise to identify programs of interests of the government budget. Next, an assessment of the amount of expenditures is made. The computed environmental related expenditures were then evaluated in terms of the contribution of Mauritius towards climate change adaptation and mitigation, taking into account their level of relevance as further explained below.

7. The definition of environment and environment related expenditures as it applies to Mauritius was formulated, as explained in Chapter 3. Against this definition, the description of the 126

programs of Government were reviewed, and some 30 programs were shortlisted for consideration. Further information was sought on these 30 programs, through meetings with public officers from the concerned departments /ministries and from information from relevant reports that include principally the PBB and Accountant General (AG) Reports, on the objectives and nature of the activities, projects and programs, in order to ascertain their relevance to the environment.

8. Where sufficient information was available to the team, to justify that the expenditures of a specific programme could be considered as 100% related to the environment, the total yearly expenditures under this programme, as spelt out in the AG reports for the period 2011 to 2014, was attributed as environment related. The expenditures in the AG reports include both current and capital expenditures.

9. For programs considered not to be totally related to the environment, based on inputs collected as described in the previous paragraph. an estimate of the proportion of expenditures that could be attributed to the environment was carried out, taking into consideration the inputs of the public officers where available. For example, for Programme 441 (Utility Policy, Planning and Management), senior officials of this ministry expressed the view that 25% of the resources utilized could be considered as related to environment management and protection. On this basis, also considered as credible by the team, 25% of the total expenditures of Prog 441 were considered as environmental related.

10. For programs where an estimate of the proportion of environment related expenditure was not possible, inputs were specifically solicited from concerned public officers or estimates were limited to clearly identifiable activities / projects from the AG or PSIP reports for the identification of relevant expenditures. For example, for Programs 404 and 405, inputs were solicited from the National Development Unit (NDU), regarding amount of expenditures that are related to drainage and embellishment projects and activities, as road repair activities could not be considered as environmentally related. The amount reported on a yearly basis was thus assumed as environmentally relevant for these programs, especially for the drainage projects which provide a very important contribution towards disaster risk reduction. For the case of Rodrigues, the expenditures were identified jointly with the concerned public officer on the basis of activity / project description in the PSIP to compute an estimate of the environmental related expenditures.

11. In case where an estimate of the proportion of environment related expenditure was not possible, no figures have been reported. This is the case for Prog 322 (Government Buildings), Prog 323 (Roads and Bridges) and Prog 324 (Land Transport Management), under the Ministry of Public Infrastructure and Land Transport, although consultative meetings were held during the mission visit. In the absence of well defined information, it is very difficult to make estimates of environment related expenditures, for programs with large budgets, such as Prog 323 (Rs 4.3 bn in 2011) and Prog 324 (Rs 1.3 bn in 2011).

12. The computed environmental expenditures were then assessed for their relevance to improving climate resilience for adaptation and mitigation of climate change, the level of relevance worked out according to the CPEIR methodology, as further explained in Section 3.1 of chapter 3. It is agreed that a certain amount of subjectivity is inherent in this process. In addition, studies to

date have excluded expenditure on activities that may lead to exacerbation of climate change, such as fossil fuel subsidies (Bird et al., 2012).

13. The simplified methodology as outlined is also due to the limited time of this study extending over 25 days. According to IIED, a full PEER lasts over 6 months, while the implementation of a CPEIR may last over several months (UNDP-ODI, 2012). It is expected that this preliminary PEER will be used as a baseline for future and more elaborate studies.

14. The team had discussed about the proposed methodology with MoFED during the mission visit, prior to finalizing the inception report. It was also agreed that data collection for expenditures related to sustainable development would not be possible in such a short time as it would imply investigating additionally into social and economic spheres. The focus will thus be restricted to the environment and climate change.

15. **Limitations and challenges.** The first challenge of this review is that, since it is the baseline PEER for Mauritius, the definition of the boundary of environmental expenditure took sometime. Even if Mauritius has a full ministry in charge of environmental issues, identifying environmental expenditure was complicated since environment is a cross-cutting sector. There was a need to identify individual project/programs implemented by other ministries or public institutions.

16. Secondly, the short period of time allocated to complete the review did not allow the consultants to deepen the data collection, especially for project results, their analysis and research.

17. Finally, data collection was the main issue since it was difficult for the team to obtain the latest data (already published by the Accountant General office) in a working soft version. The team received a working version of the data much later in the process. In addition, the team experienced difficulties to meet with some stakeholders during field mission visits and delays in getting responses and no responses were received in many cases. Very often the description of programs / projects / activities is not clear enough, and it was difficult to obtain clarifications from officials of concerned ministries / departments to enable the assessment of particular expenditures in terms of relevance to environment and climate change. In the case of Prog 442, labelled as Energy Services, the activities are now related to the Energy Efficiency Management Office (EEMO). The objective of EEMO and the extent of its expenditure are totally different from those of the Energy Services, and it has proven very laborious to identify relevant environment expenditures due to minimal feedback to the queries of the team.

18. **Structure of the report**. The report is organized as followed. The next section presents an overview of the macroeconomic, social and public finance management of Mauritius. Section 3 discusses the main definitions used in the report and the environment institutional framework. The following section analyzes the public environmental expenditure. Section 5 analyzes the efficiency and effectiveness of public environmental expenditure. The report closes with the conclusion and the main recommendations.

2.0 Mauritius: Macro-economic and Public Finance, an overview

2.1. Macro economics performance

20. **Macro economic trends**. Mauritius had built a strong and stable macro economic climate by developing an exclusive export oriented and diversified economy achieving middle-income status. Its creation of a positive social contract between government, business and its citizens resulted in a wealth creation model with shared prosperity and growth among the population. This shared prosperity pulled the majority of the population out of poverty and created a large middle class. Starting as a mono-cropped, inward-looking economy, Mauritius moved toward an export oriented and diversified economy producing textiles, tourism, financial and ICT services.

21. About a decade ago, the Mauritius economy showed signs of distress associated with an economic model that had lost its resilience in a changed global economy with negative terms of trade, growing economic competition in low cost markets and less access to international markets. At the time reforms were introduced in the labor market, the economy was liberalized and opened to foreign investment. In the short term, the reforms paid off producing economic growth, employment, increased Foreign Direct Investment (FDI) and private investment producing declining public debt ratios.

22. As most of the world went through an economic upheaval culminating in a near financial collapse in 2008, Mauritius was also affected. Since 2010, economic results have been less positive with a decreasing GDP and a waning of the effects of the reforms that had been instituted as it readjusted to the earlier economic changes.

23. It is reasonable to see Mauritius as a net importer of capital as its economy grows. It is also estimated that approximately 2.7 percent of the current account deficit can be attributed to the level of development. The decline in purchasing by the country's main trading partners has led to a slowdown in demand for exports, which has added to the current account deficit.

24. A combination of fiscal and monetary policies has contributed to about 4 percent of the GDP of the current account deficit. Increases in credit to the private sector and appreciation of the real exchange rates added around .09 percent points each. These data indicate the importance of fiscal consolidation and the need for a more flexible exchange rate to cope with external vulnerabilities.

25. As a result of the current account deficit growing faster than stable sources of FDI a greater portion of the deficit relies on credit investment subject to high rollover risks, more volatility and sensitive to global market conditions. The attraction of FDI has become crucial for Mauritius as a stable source of investing.

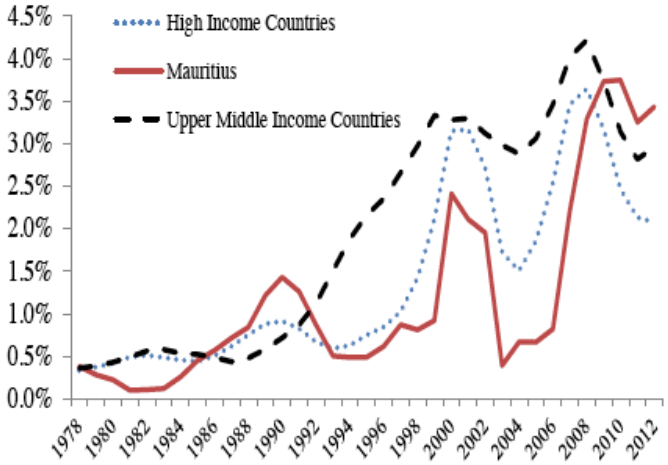
26. Mauritius has been relatively successful in managing its Macro Economic Framework, but requires improved fiscal efficiency and restoration of fiscal space, which is key to its ambitious development agenda. The fiscal environment in which the government operates will be more challenging in the future with projected large expenditures and increasing government liabilities (i.e. pensions and health). Fiscal consolidation has been successful, but the country's economic focus on

trade and investment and the vulnerability of its external European partners necessitates it to maintain solid financial buffers to conduct countercyclical policies as needed.

27. The government's obligation to meet statutory debt targets within an environment of low taxation suggests projected consolidation will necessarily come from public expenditure restraints. This means finding deficiencies and improving service delivery in areas of social protection, education and health. Without expanding its tax base, these expenditures may be less than required to develop the human capital and infrastructure necessary to improve economic growth and expansion.

28. The Government has taken important steps to improve it macroeconomic management of the economy including the reduction of the debt ratio to overall spending relative to the GDP. In view of the current low tax strategy of the country, reductions will be required in overall spending relative to GDP is needed to achieve a 50 percent to GDP public debt reduction by 2018. In order to accomplish this, acceleration of the fiscal consolidation efforts is a necessity.

Figure 2. FDI (% of GDP), selected countries, 1978-2012



Source: WDI

29. Growth moderation, public spending pressure and an uncertain external economic environment present risks that could make the country less resilient and more prone to economic instability. This would challenge the country's development model, which relies on stability to attract FDI (refer to Figure 2). Financing the deficit currently is not a problem with excess liquidity, low inflation and a positive interest rate. However, a reversal of this scenario could develop rapidly and require large policy adjustments.

30. Fiscal sustainability is not the only issue affecting Mauritius; it is also the consistency of the development model, which requires predictability and proactive risk management to provide an adequate environment to attract foreign investment.

31. **Tourism**. The tourism sector has been severely hit by adverse economic shocks in Europe, compounded by overcapacity and loss of competitiveness. Tourism represented 7 percent of GDP and 5 percent of total employment in 2012. This is after tourism suffered substantially as a result of the 2008 global financial crisis and the subsequent European sovereign debt crisis, which struck hard

at the country's main tourism markets. Arrivals from these markets have been on a downward trend and only partially offset by arrivals from emerging partners including China, India and South Africa. Overall, arrivals are well below what the 2002 Tourism Development Plan projected 2 million tourist arrivals in 2014 as opposed to actual arrivals of just 1 million. This has resulted in increased competition for fewer tourists and the subsequent stagnation of earnings per tourist (World bank, 2015).

32. **State owned enterprises** (SOEs) play a strategic role in the provision of goods and services. They form one of the largest sectors in the economy and are important contributors to the National Economy. However, they also absorb significant government resources estimated at 3 percent of the GDP (2010). While significant progress has been made to reduce this fiscal burden and to lower their debt burden, there is much need to modernize their governance processes, reporting practices and accountability. This will assist them in enhancing their contributions to Mauritius and advancing the economy and bringing more benefits to all of its citizens.

33. There are significant risks to government funding associated with the operation of SOEs that require attention, planning and action. Clear development objectives and ownership policies would go a long way to eliminating current ambiguities relative to their management and oversight. The legal framework for SOEs, under which they operate, can be simplified, streamlined and harmonized to clarify the legal form for their operation. Oversight capacity, which currently is spread between a number of Ministries, needs to be strengthened technically and politically to more effectively supervise and monitor their performance. This is particularly important since some of the key SOEs have large share of environmental expenditure (such as the CWA, CEB, WMA).

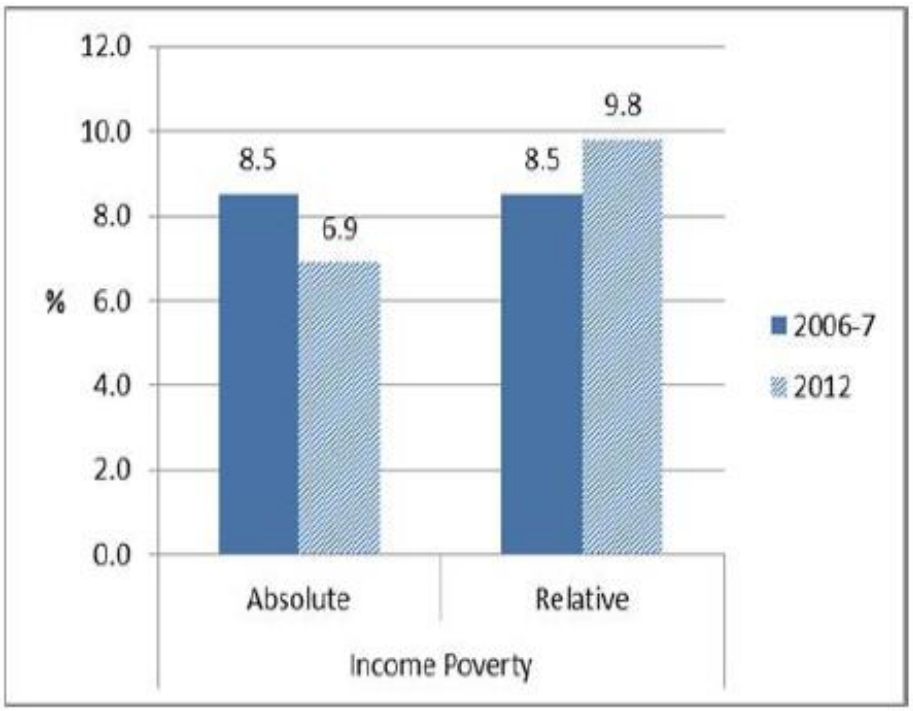
34. **Education.** Mauritius does not invest a large amount into education and training targeted at relevant higher skill levels. This amount has been decreasing progressively from 4.5 percent of GDP in 2003 to 3.5 percent in 2012. The tertiary education allocation is 0.2 percent of GDP, secondary education is favored with 1.7 percent of GDP and TVET (technical and vocational education and training) education, which is publicly funded, accounts for only 5 percent of the total education budget.

35. A changing economy requires a revamped education and training system geared to relevant increased knowledge and targeted skills. Reforms are required to improve the quality and relevance of skills training, which in turn necessitates the expansion of secondary and tertiary education. This will require additional investment in infrastructure and teacher training. Additional funding will be required to address non-financial factors that have an impact on learning outcomes (i.e. availability and quality of learning materials, relevance to curricula, and teacher's performance and accountability). This will entail new approaches to funding and a strengthened dialogue between the public and private sectors to develop an education and training system best suited to the needs of Mauritius and an advanced modernized economy. It will also require better use of learning assessments to inform policy and quality driven reform.

36. **Poverty.** A Systematic Country Diagnosis conducted by The World Bank (2015) identified priorities to accelerate sustainable economic growth and improve the well-being of those less well off. Absolute poverty by international standards is negligible as less than 1 percent of the population

lives below $2 US dollars per day. As shown in Figure 3 Poverty had fallen to only 6.9 percent in 2012. It is concentrated among children and youth, especially those with lower education levels or single women parent families. Relative poverty, because of increasing economic inequality, has risen to 9.8 percent. Income growth of the bottom 40 percent of the population has been disappointing increasing annually by 1.8 percent compared to 3.1 percent for the population at large. As a result, the middle class has contracted and is increasingly vulnerable to regressing into poverty.

Figure 3. Income absolute and relative poverty, 2007-2012



Source: HBS 2007, 2012

37. Mauritius has a number of challenges and major decisions to make as does other countries in Africa and throughout the world as the global economy is still recovering from the impacts of the near economic collapse and the shift of much of the world's production to China. These challenges relate to which path the government decides to pursue. In the case of Mauritius, it can increase public investment to boost economic growth and reinforce public assistance to enhance redistribution. On the other hand, it can adopt a private sector driven economy where the public sector becomes the enabler reducing identified inhibitors and constraints to industry and business ensuring that proceeds are adequately shared by targeted social assistance and improvements in service delivery by government.

38. One of its challenges is the reduction in saving rates in Mauritius from 25 percent of GDP in 2000 to 15 percent in 2013 coupled with an increase in the consumption rate, which has led to more dependency on Foreign Direct Investment (FDI). At the same time, investment rates have remained stable at 25 percent of the GDP. The difference in the current account balance of 11

percent of GDP between 2003 and 2013 is reflective of the 11 percent decline in public savings and an increase in private investment.

2.2. Public finance management process

39. A comprehensive and sustainable approach of public finance will likely require an acceleration of public sector reforms for service delivery, improved planning, financial management and monitoring and evaluation to sustain implementation of these reforms. This was behind the government's adoption of Programme-Based Budgeting (PBB) in the context of a Medium Term Expenditure Framework (MTEF). The main reason for adopting this approach was similar to other countries experiencing high levels of public debt and excessive budget deficits, thereby reducing fiscal capacity to expand social development spending.

40. Programme Based Budgeting (PBB) seeks to improve expenditure efficiency and effectiveness by systematically linking funding to results making use of performance information to achieve that linkage. Expenditure prioritization is essential when a government is experiencing new and unexpected expenditures with limited financial resources; necessitating tough choices. PBB is an integrated approach to change the focus of the budgetary process from an input based annual activity into a performance-based exercise.

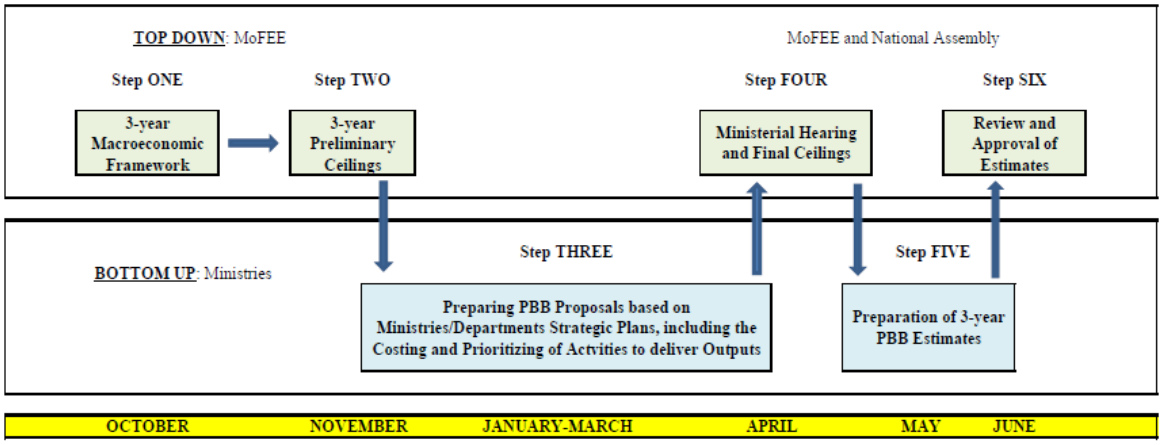
41. In 2006-2007, the Mauritian government embarked on an economic reform programme to increase economic effectiveness, attract Foreign Direct Investment (FDI), empower the poor and strengthen fiscal management. The government decided to reform its budget process by introducing PBB through a Medium-Term Expenditure Framework (MTEF). This is a transparent process that seeks to link policy making, planning and budgeting through a process, within which, Cabinet and central agencies establish credible bases for allocating strategic resources to strategic priorities, while ensuring fiscal discipline. PBB considers the budget as a policy commitment, as much as a spending commitment. It entails preparation of three year rolling budgets and a five-year National Development Plan.

42. The Mauritius government decided on this approach with several goals in mind. These included a desire to make public management more results oriented and produce high quality, client responsive public services. It wished to create a process of public planning and management based on performance and evaluation, where resources could be allocated within and between programs and sub-programs in order to reduce expenditures and increase efficiencies. It wanted to institute gender equity throughout the process of aligning budgets to policy. Cabinet felt the need to have more concrete information related to performance for decision-making. Overall, the government wanted to improve the effectiveness of its Ministries and Departments.

43. In the PBB process as described in Figure 4, the MTEF defines a top down medium term resource envelope and bottom up cost estimates to carry out policies to reconcile spending which are consistent strategies. It takes into consideration that resources are limited and unlikely to increase in the medium term, thereby it is a tool to allocate resources to the government's priorities. The MTEF entails government assessing its total resources and seriously estimating the actual cost of delivering services within each department's policies on a three-year basis. A three-year budget is developed which rolls forward after each yearly budget and then another year is added to the frame.

44. The MTEF is a tool for facilitating decision making by making budgeting more strategic in matching expenditures to agreed strategic activities. It provides a baseline each year so that government can adapt to changing conditions and priorities. Budget preparation now involves matching Ministry Department requirements to available resources, which ensures more strategic spending.

Figure 4: The 6 steps of the PBB



Source: Mauritius Manual for PBB

45. Macroeconomic stability is critical to creating an environment that stimulates investment, enhances production, creates jobs and accelerates sustainable economic growth. In this regard PBB and the adoption of a MTEF process has allowed the Mauritius government to complete important initiatives with the shift away from the traditional input-based annual budget process to the strategic, performance oriented multi annual exercise. This has resulted in an internal control framework that ensures better economic and effective use of government resources and that its assets are safeguarded. These early reforms allowed Mauritius to achieve a prominent regional position and Middle Income Country status.

46. Despite the significant progress made in implementing Programme-Based Budgeting, the government has reverted to a traditional input based budget process for 2015. This approach restricts the government's ability to allocate resources to policy priority objectives and limits the performance information necessary for expenditure accountability. This shifts Mauritius away from proven good practices implemented by other peer countries to enhance allocative and operational efficiency of public resources. and will necessitate additional accounting procedures and practices to maintain operational efficiencies and public accountability.[2]

[2] Refer to the World Bank group "Mauritius Systematic Country Diagnostic" June 25, 2015, paragraph 191

2.3. The Public Sector Investment Programme (PSIP)

47. The Public Sector Investment Programme (PSIP) is the framework for the Government to plan, finance and implement infrastructure investment decisions and policies. The PSIP covers the investment plan of Ministries, Government Departments, Statutory Bodies, Local Authorities and Rodrigues Regional Assembly. It captures projects that are ongoing, new projects that have been approved by the Government and projects in the pipeline. The PSIP is a rolling 5-year pipeline of investment projects for funding by the Government own resources, the state owned institutions, and development partners. The PSIP is reviewed every year to stay align with the overall Government investment priorities and sectorial policies.

48. The PSIP has several objectives. Firstly, it presents the overall investment strategy of Government over the medium term and provides a basis for transmitting macroeconomic policies and sector strategies into well defined investment programs and projects.

49. Secondly, the PSIP serves as a parameter for the preparation of the development budget as part of the 3- Year rolling Programme Based Budget (PBB). It facilitates the preparation of sector expenditure ceiling while ensuring that they fit the aggregate expenditure consistent with the macroeconomic framework.

50. Thirdly, the PSIP assist in mobilizing resources from bilateral, multilateral and other funding agencies through identification of a set of sound and viable projects for financing. It also constitutes an important input for planning the borrowing requirements of government for financing investment projects with a view to keeping public sector debt within sustainable level.

Preparation process of the PSIP.

51. A project, for the PSIP, is defined as any investment activity related to the following:

(i) construction of new buildings and structures;

(ii) upgrading, renovation and extension of existing buildings and structures;

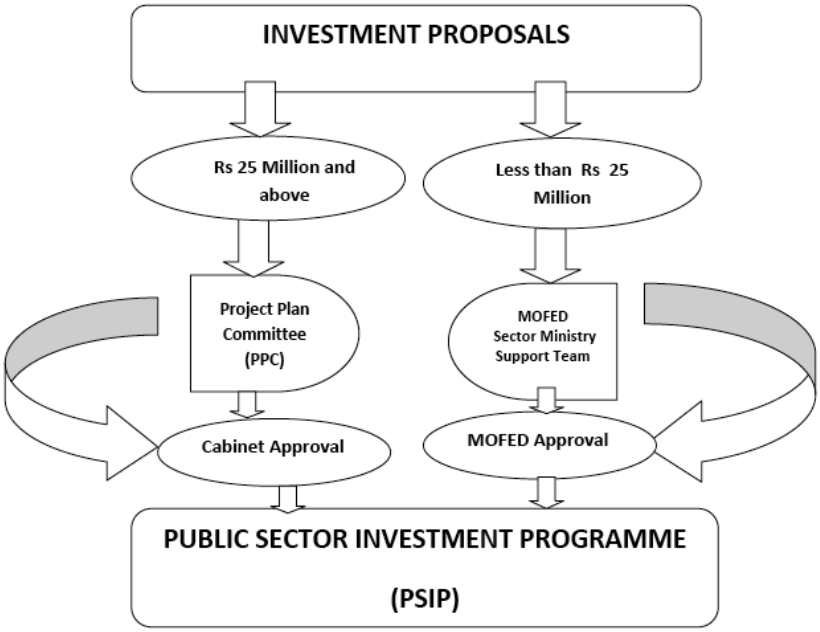
(iii) acquisition of transport equipment, other equipment and machinery; and

(iv) upgrading of machinery and equipment.

52. **On-going projects.** First, priority consideration is given to the inclusion of on-going projects in the PSIP for which contractual obligations have been taken and projects that have reached an advanced stage of preparation. The on-going projects remain in the PSIP till completion and commissioning.

53. **New projects.** The inclusion of new projects in the PSIP are done after a formal screening process that ensure the feasibility and viability of the the project. Figure 5 presents the PSIP project project appraisal process.

Figure 5: PSIP Project Appraisal Process



Source: PSIP 2011

54. An inclusion of a new project in the PSIP has to follow the requirements of the Investment Project Process Manual (IPPM). A project proposal with a cost above Rs 25 million is submitted to the Project Plan Committee (PPC) for appraisal and recommendation for inclusion in the PSIP. On the other hand, investment proposals below Rs 25 million, particularly those that would be financed from budgetary resources have to be submitted to MOFED for analysis and evaluation.

55. The PPC, set up under the aegis of the Ministry of Public Infrastructure, National Development Unit, Land Transport, and Shipping is responsible for assessing the infrastructure needs of the various sectors of the economy and developing a project pipeline.

56. The investment project proposals are assessed on the following key criteria:

(i) Clear objective and economic and social justifications;

(ii) Outcome of the feasibility study or need analysis carried out;

(iii) Availability of land and utility services;

(iv) Environmental impact assessment carried out where applicable;

(v) Cost estimates and their impact on the recurrent/operating budget; and

(vi) Implementation and projected disbursement schedule.

57. Project proposals that meet the above criteria are qualified for inclusion in the PSIP whereas project ideas that are considered potentially viable are recommended for feasibility study. It has to be noted that the above process does not apply to projects funded by Institutions' own resources. Hence, the PSIP does not cover the whole universe of public investment but only those finance by Government "resources".

3.0. Overview of the Environment sector

3.1. Definition of public environmental expenditure

58. Defining environmental expenditure is a challenge since there is no international consensus. We will define first environment in Mauritius and then environmental expenditure.

59. **Environment.** According to the Environmental Protection Act (EPA)[3], the environment in Mauritius includes "(a) land, air, water, or anyone of, or any combination of, these media (b) all living organism; and (c) any built-up environment".

60. For this study, the environment refers to the natural resources and assets that include the flora and fauna, land, air, water resources, forests, coastal zone, terrestrial and marine biodiversity/ecosystems. It also includes the surroundings or conditions in which a person, animal, or plant lives or operates, as protection of the built environment provide an important contribution to the improvement of the living conditions of the population.

61. **Climate change.** Climate and weather also affect human survival and economic activity. An activity should be classified as adaptation-related if it intends to reduce the vulnerability of human or natural systems to the impacts of climate change. Regarding climate change mitigation, an activity is so classified, if it contributes to the objectives of stabilization of greenhouse gas (GHG) concentrations in the atmosphere, to reduce or limit GHG emissions or to enhance GHG sequestration (OECD, 2011)

62. **Environmental expenditure.** There is no international definition for environment expenditure. Therefore, each country defined the composition of the public expenditure for environment. This represents a major challenge for this review. Several international agencies have defined environmental expenditure and there is a need to reach a consensual definition for Mauritius.

63. According to the OECD, environmental expenditures are all pollution abatement and control (PAC) expenditure plus protection of biodiversity and landscape, research and development (R&D) in environment). The United Nations (UN)[4] defines environmental expenditures as those which reduce or eliminate pressure on the environment and which aim at making more efficient use of natural resources." Public Environmental expenditure is also defined as Expenditure by public institutions for purposeful activities aimed directly at the prevention, reduction and elimination of pollution or any other degradation of the environment resulting from human activity, as well as natural resource management activities not aimed at resource exploitation or production. (The World Bank, 2003)

[3] the main legal framework to support environmental management in Mauritius

[4] System of Integrated Environmental and Economic Accounting (SEEA)

64. For Mauritius, it is important to adapt these definitions in the national context and design a larger definition of environmental expenditure so as to get as full a picture of environmental expenditure as possible. Hence, environmental expenditure in Mauritius will include the following:

i. expenditures that have both a direct and indirect impact on the natural or built up environment. This includes expenditure towards environmental management but also expenditure towards protection and control of human activities that may affect the environment.
ii. expenditures within the following categories and any other environmental expenditure which falls into the above description.

- Land and similar resources
- Hydrological and associated resources
- Ocean, coast and islands
- Biodiversity (species and protected areas)
- Urban environment
- Urbanization and planning
- Healthy environment
- Air pollution
- Population dynamic and structure
- Water and sanitation
- Renewable energy
- Energy efficiency
- Cleaner Production
- Sustainable transportation
- Sustainable waste management
- Climate change

65. As a result of a review of the various national budget programs of the Government for the period 2011-2014, the institutions / departments have been identified as those principally carrying out activities directly related to the environmental sectors mentioned above, as briefly described in the roles and responsibilities column. The challenge is to identify relevant but relatively small expenditures in large budget ministries, e.g. in the Ministry of Heath, or Ministry of Public Infrastructure & Land Transport. Table 1 presents a list of programs, including the CWA and the CEB and their respective ministries that were selected to estimate the Recurrent Environmental Expenditure (REE) of Mauritius during the period 2011-14. The Capital Environmental Expenditure (CEE) are the one from the PSIP.

66. The Ministry of Public Infrastructure and Land Transport is not included in Table 1, due to insufficient information concerning three Programs related to buildings, roads, bridges and land transport management, to make a reasonable estimate of environment related expenditure. As regards Prog 342 of the Ministry of Tourism and External Communications, labelled "Sustainable Tourism Industry", the primary objective and the activities are not targeted towards environmental sustainability, according to preliminary feedback received, and no evidence could be obtained from documentation reviewed about actual environmental related expenditures.

Table 1: Ministries and programs reviewed for the PEE

Ministry of Environment and Sustainable Development, Disaster and Beach Management
Programme 401: Environmental Policy and Management
Programme 402: Environmental Protection and Conservation
Programme 403: Uplifting and Embellishment of the Physical Environment
Programme 406: Sustainable Development
Programme 463: Solid Waste Management, Landscaping and Provision of Amenities
Ministry of Agro- Industry and Food Security
Programme 481: Policy and Strategy for Agro-Industry and Food Security
Programme 482: Competitiveness of the Sugar Cane Sector
Programme 483: Development of Non Sugar (Crop) Sector
Programme 484: Livestock Production and Development
Programme 485: Forestry Resources
Programme 486: Native Terrestrial Biodiversity and Conservation
Ministry of Ocean Economy, Marine Resources, Fisheries, Shipping and Outer Islands.
Programme 487: Fisheries Development and Management
Programme 751: Policy and Strategy for Fisheries and Rodrigues
MOI & Sub Prog 20108: Ocean Affairs & Devlp
Prime Minister's Office
Programme 281: Meteorological Services
Programme 404: Community-Based Infrastructure, Amenities and Public Empowerment
Programme 405: Land Drainage
MID Commission - Sub Prog 20107
Total Expenditure RRA
Ministry of Energy and Public Utilities
Programme 441: Utility Policy and Management
Programme 442: Energy Services
Programme 443: Water Resources
Programme 444: Sanitation
Programme 445: Radiation Protection
Central Elctricity Board (CEB)
Central Water Authority (CWA)
Ministry of Local Government Local Authorities (Min Local Govt)

Source: Authors

67. The PBB presents both the capital and recurrent expenditures while the PSIP presents only the capital expenditure. We define the capital expenditure as all expenditure from the PSIP report while the recurrent expenditure is the total expenditure from the PBB minus the expenditure from the PSIP.

68. **Identifying climate change related expenditure**. Once we identified the environmental expenditure, another challenge is to identify climate change related expenditure. This section reviews the basis for analyzing the expenditures that have been identified as environment related, in terms of their relationship to climate change. All expenditures that are deemed to be relevant to climate change do not have the same degree of relevance. The climate change relevance is defined to (i) improving climate resilience (for adaptation) or (ii) mitigating of climate change. The degree of

relevancy of activities / programs are generally classified under groupings, ranging from High to Low, as illustrated in table 2 below.

69. In this study, the programs relevant to the environment have been identified, as previously highlighted. For the relevance to climate change, a simplified classification is adopted, due to the limited scope of the study, where a qualitative judgment is used, based on information made available – through programme / objectives / activities description, inputs of government officers, experts' advice - to attribute the level of relevance to the activities / programs with respect to climate change adaptation / mitigation.

70. The level of relevance reflects the importance of the contribution of the particular activity / programme, towards improving climate resilience for adaptation or mitigating climate change.

Table 2: CPEIR climate relevance index

Relevance	Weights	Rationale
High	more than 75%	Clear primary objective of delivering specific outcomes that improve climate resilience or contribute to mitigation
Medium	between 50% to 74%	Either (i) secondary objectives related to building climate resilience or contributing to mitigation, or (ii) mixed programs with a range of activities that are not easily separated but include at least some that promote climate resilience or mitigation
Low	between 25% - 49%	Activities that display attributes where indirect adaptation and mitigation benefits may arise
Marginal	less than 25%	Activities that have only very indirect and theoretical links to climate resilience

Source: Adopted from UNDP CPEIR Methodological Guidebook (2015)

71. On the basis of the above methodology, the following levels of climate relevance have been attributed to the environmentally related programs in the sectors listed below, as illustrated in Annex 4. It must be pointed out that there are some climate related expenditures, predominantly of low relevance, that are incurred in a few other ministries / parastatals [5].

72. The team was not able to carry out the investigations mainly due to the delays encountered in obtaining data and comments from a number of public bodies from the initially priority / targeted list. The intention was to move on to such ministries, after satisfactorily obtaining the required feedback from the priority list.

73. It is a challenge to identify the relatively limited environment related or climate change related expenditures in large budget ministries. In the education sector, there are potential high climate

[5] the main ones being Ministry of Education and Human Resources, Tertiary Education and Scientific Research, Ministry of Health & Quality of Life, Ministry of Industry, Commerce and Consumer Protection and Ministry of Social Integration and Economic Empowerment

change relevance expenditures in the research and tertiary sector. The expenditure related to solar PV projects are captured under MID Fund. In the health sector, there is rising concern about the need for greater surveillance of diseases associated with climate change as highlighted in the INDC. Communication, education and awareness strategy with respect to climate change risks are expenditures of high relevance in both the education and health sector. Although climate change communications in general are meant to be carried out by the Climate Change Information Centre of the Climate Change Division, such communications are limited in practice, mainly due to limited resources. It is assumed with the training to be imparted, and the coding to be proposed, the trained public officers will be able to identify a more comprehensive list of relevant expenditures in the future.

3.2. Environment Related Institutions

74. The main institution in charge of environment in Mauritius is the Ministry of Environment Sustainable Development, Disaster and Beach Management (MoESDDBM). The responsibilities for Disaster and Beach management, and for Solid Waste were added to this ministry in December 2014. The Department of Environment exercises numerous responsibilities through its 12 divisions[6]. Recent institutional changes include the set-up, in 2010, of a sustainable development division - to coordinate the mainstreaming of sustainable development into national decision making processes- and the creation of a climate change division - to enhance the country's resilience to climate change in response to the challenges faced by the country.

75. In addition, a range of activities related to the environment[7], are carried out by several other ministries. The main ministries and the relevant functional environmental related institutions / bodies are listed in table 3, along with their key roles and responsibilities.

[6] such as, Policy and Planning, environmental assessment, EIA monitoring, Pollution Prevention and Control, Integrated Coastal Zone Management, and Information & Education

[7] such as energy, water, sanitation, forestry, land use planning, terrestrial and marine bio-diversity and climate

Table 3: Functional entities and responsibilities for environment & climate areas

	Main Roles, Responsibilities & Core functions
Institutions / Department	**Ministry of Environment Sustainable Development, Disaster and Beach Management**
Department of Environment	To achieve a "cleaner, greener and safer Mauritius" in a sustainable manner through protection and management of the environmental assets, mainstreaming sustainable development principles in different sectors of the economy. To incorporate climate change adaptation and mitigation measures to ensure sustainable development initiatives. To devise appropriate legal and policy framework regarding environment related issues. Operate 12 functional divisions. Climate Change Division was set up in 2010 to Implement International Climate Change Agreements, develop a climate change mitigation and adaptation framework, coordinate national, regional and international projects in relation to climate change and sea level rise.
Solid Waste Management Division	Protection of the environment and public health through proper management of solid and hazardous wastes. Formulation of policies and strategies for environmentally sound management waste streams. Management of transfer stations and sanitary landfill in Mauritius.
NDRRMC	Coordinate and monitor the implementation of disaster risk reduction and management activities as per the National Strategic Framework and National Plan
Beach Authority	Integrated approach in the proper control and management of public beaches. Conservation & protection of the environment and up-lift & landscaping works on public beaches
MID Fund	Finance projects to achieve sustainable development and increase resilience to climate change.
	Ministry of Agro-Industry & Food Security
Forestry Service	Conservation, protection and development of the forests through sustainable management are priority objectives of the overall national policy of Mauritius.
NPCS	Responsible for the management of native terrestrial biodiversity and its ecosystem.
FAREI	Conducts research in non-sugar crop and livestock and provides extension services to farmers.
	Ministry of Ocean Economy Marine Resources, Fisheries, Shipping and Outer Islands
Fisheries & Marine	To provide an enabling environment for the promotion of sustainable development of fisheries sector, and become an economic pillar with due regard to sustainability of aquatic resources
	Prime Minister's office
Meteorological Services	Provide accurate and timely weather information and meteorological products, including seasonal forecast, cyclone & other extreme weather events warnings, and climate data.
National Development Unit	Contribute towards the enhancement of the quality of life through three main activities that include Implementation of Land Drainage Programme.
Rodrigues Regional Assembly	Responsible for the formulation and implementation of policy in relation to Rodrigues. Pass Rodrigues Regional Assembly Regulations in relation to matters for which it is responsible
	Ministry of Public Infrastructure & Land Transport
Public Infrastructure Div.	Implementation of Road, Bridge and Government Building Infrastructural Projects.
Land Transport Division	Responsible for providing a land transport system service that responds to the needs and aspirations of the people and contributes to the development of the country.

	Ministry of Energy & Public Utilities
Policy & Mgt Unit	Formulating policies in the energy, water & wastewater sectors and establishing a responsive legal framework to govern the development of these sectors.
Water Resources Unit	Responsible for assessment, development, management and conservation of water resources. Study and formulate policy in relation to control and use of water resources for the provision of water for domestic, agricultural, industrial and commercial supplies and other related sectors.
Energy Efficiency Mgt Office	Develop strategies, programs and action plans, for the efficient use of energy, issue guidelines for energy efficiency and conservation in all sectors of the economy.
Wastewater Mgt Authority	Established under the Wastewater Management Authority Act 2000. Responsible for all matters relating to the collection, treatment and disposal of wastewater throughout Mauritius.
Radiation Protection Authority	To effectively regulate all practices involving sources of ionizing radiation so as to protect people and the environment from the harmful effects of ionizing radiation.
Central Elect Board	Responsible for transmission, distribution and supply of electricity to the population.
Central Water Authority	Treatment and distribution of potable water for domestic, commercial and industrial usage.
	Ministry of Local Government
Municipalities & District Councils	Cleaning and embellishment of the urban and rural areas for improved living conditions.

Source: authors

76. A number of environment related institutions, responsible for important advisory and policy making decisions is listed in table 4. The National Environment Commission, which is chaired by the Prime Minister, has not been active during the review period and is earmarked to be revived under the new government programme. The MID Commission, which was responsible for the coordination of MID projects and implementation of the action plan, has been disbanded as at December 2014.

Table 4: Environment Related Institutions - Advisory / Policy making entities

Institution	Mandate
National Environment Commission	Chaired by Prime Minister. Set national objectives & goals, and determine policies and priorities for the protection of the environment. Ensures coordination and cooperation between public departments, local authorities, and other government organizations. Has not been active during 2011-14, but will be revived according to programme of new Government.
National Network for Sustainable Development	Chaired by Minister of MoESDDBM. Forum for discussions and consultations relating to harmonization of the various sectorial, economic, social and environmental policies and plans, quality and state of the environment. Integrated approach to pollution prevention and control. Not active during review period.
Environment Coordination Committee	Chaired by SCE of MoESDDBM. Ensure maximum cooperation and coordination among enforcing agencies and other public departments dealing with environment protection; ensure prompt and effective consultation about environment protection & management. Not active during review period.
National Disaster Risk Reduction and Management Council	Chaired by Minister of MoESDDBM. Coordinate the implementation of National Disaster Risk Reduction and Management Policies, and The National Disaster Risk Reduction and Management Strategic Framework and Plans developed by the National Disaster Risk Reduction and Management Centre.
Maurice Ile Durable (MID) Commission	Operated under PMO in collaboration with MoESD and other stakeholders. Ensure finalization and timely implementation of the Action Plan on MID. Coordinate MID project and harmonize efforts, and look into all sustainability aspects. Include a MID Strategic Committee. Main platform for sustainability matters during 2011-14. Disbanded in Dec 2014.

Source: authors

77. The roles and responsibilities of the various environment related institutions are well defined, as illustrated in Tables 4 and 5 above. However, there is a perception that sustainable development has not subsequently been given the priorities that the government had announced at the launching of the MID programme in 2008. This is due, to delays in its implementation, and to the performance of relevant institutions, although environment related activities such as water savings and renewable energy were promoted in priority. The NEC has in fact not been active during the past decade.

78. Besides claims for lack of financial resources, the limited achievements could be due to a lack of synergy among the environment institutions that was expected to be achieved by the MID Commission, and the frequently made assumption that environment matters are to be handled by the ministry of environment. A greater level of collaboration is required within public bodies, with more initiatives from MoESDDBM, for speedier mainstreaming of sustainable development, environment and climate change into their policies, activities and development plans.

79. The recent regrouping of disaster risk reduction and management, and waste and beach management under the MoESDDBM will create greater dynamism among these key environment institutions. Proactive initiatives have been especially visible in the field DRM during the past year, and a bill is expected to be submitted to the National Assembly for approval soon.

80. Support to sustainable development, environment and climate initiatives is likely to be stronger if endorsed by a high level body, such as the National Environment Commission, as it is chaired by the Prime Minister.

Recommendation 1:

Revive the National Environment Commission (NEC) to create better synergy among the various stakeholders to address important environmental concerns and issues and to ensure high-level engagement and provide policy guidance.

To set up a technical committee to serve as a secretariat to the NEC and that will be located at the MoESDDBM. To improve coordination, it is proposed that all ministries likely to have a substantial relevant work load be equipped with an environment / climate change desk, with whom the secretariat of the NEC would be regularly liaising.

3.3. Coding environmental expenditure for tracking.

81. Coding environmental expenditure is a way to allow tracking of these expenditures in the government budget. This is done by "merging" government's functional areas of budgeting and budget execution.

82. Investment projects in Mauritius are classified into nine (9) broad sectors which reflect the economic and social functions of Government. The classification is done at two levels: broad sectors and specific sectors. The broad sectors, representing the general objectives of Government, are further divided into specific sectors to demonstrate the means by which the general objectives are to be achieved. The classification is shown in Annex 5.

83. The coding of the climate change related expenditure is done by adding two digits (**XX**) to the actual code of expenditure. The first digit will specify if the expenditure is a climate change related expenditure. The second digit will specify the level of relevancy of the climate change expenditure (high, medium, low, marginal refer to table 2)

- The first digit will take the values 0 (zero), 1 (one) or 2 (two):
  - **0** if the expenditure is **neither a mitigation nor adaptation related expenditure**;
  - **1** if the expenditure is **a mitigation related expenditure**;
  - **2** if the expenditure is **an adaptation related expenditure**
- The second digit will take the values 0 (zero), 1 (one) 2 (two), 3 (three) or 4 (four):
  - **0** if the expenditure is neither a mitigation nor adaptation related expenditure;
  - **1** if the expenditure is a climate change expenditure with a **high** relevance;
  - **2** if the expenditure is a climate change expenditure with a **medium** relevance
  - **3** if the expenditure is a climate change expenditure with a **low** relevance;
  - **4** if the expenditure is a climate change expenditure with a **marginal** relevance

84. Regarding the practical implementations for the coding of environmental / climate change expenses within the Treasury Accounting System, it is understood that further discussions will be carried out between the AG Department, MoFED and the concerned sector ministries. It is also imperative to have targeted training for all concerned public officers, to ensure the successful implementation of the climate coding system.

85. The correspondence between the COFOG and the Mauritians institutions is done by merging both classification as presented in Annex 6 and Annex 7. The one-digit level of the COFOG for environment is 05: 'environmental protection'. Adding the new coding, describe above, to this classification will provide the following sub-categories:

- **05-1-XX:** Waste management
- **05-2- XX:** Waste water management
- **05-3- XX:** Pollution abatement
- **05-4- XX:** Protection of biodiversity and landscape
- **05-5- XX:** R&D environmental protection
- **05-6- XX:** Other environmental protection services[8]

86. The classification builds from the COFOG is presented in Annex 6. This proposed classification is an international standard already adopted by several countries (Rwanda, Mozambique,…). It then allows cross-countries comparison.

3.4. Environmental Policies

87. **Environmental Sustainability Principles**. The creation of the Ministry of Environment dates back to 1990. In 1992, Mauritius was a signatory to the UN conventions on climate change and on bio-diversity, at the earth summit held in Rio de Janeiro, Brazil, where the specificities of the Small Island Development States (SIDS) were formally recognized. Mauritius has been active as a SIDS member, and hosted the Mauritius International meeting in January 2005, when the international community confirmed support for the sustainable development of the SIDS in the Mauritius Strategy for Implementation (Republic of Mauritius, 2012).

88. In its environmental approach, Mauritius adheres to the precautionary, prevention and the "polluter pays principles", and promotes environmental education and awareness. In 1988, the first National Environmental Strategy and Action Plan elaborated the policy, institutional and legislative framework for environmental management (NEAP 1). In 1999, under NEAP 2, the focus was on areas such as monitoring water resources, Integrated Coastal Zone Management and industrial management, to improve environmental quality (Synthesis Report, 2012).

89. **Policy trends during the period 2011-2014.** On the international scene, there has been an evolution from an emphasis on environmental matters in the 1990's to the sustainable development concept towards the end of the last century, and on the increasing threat of climate change during the past decade. In Mauritius, the Maurice Ile Durable (MID) concept was launched in 2008-2009, in

[8] The World Bank proposed to add the item that has used in Rwanda's 2013 PEER.

the wake of rocketing energy prices. The initial focus was on energy, and the MID Fund, attached to the Ministry of Renewable Energy and Public Utilities (MREPU), with a budget of Rs 1.3 billion, was launched in 2009. The aim of the MID fund was to fund projects to achieve sustainable development and promote renewable energy usage to reduce dependence on fossil fuels and thereby increase resilience to climate change.

90. During the period under review (2011-2014), frequent references are made in the budget measures as being compliant to the MID concept. There was a re-focusing exercise of MID in 2010-2011 on the 5 E's – namely Energy, Environment, Employment, Education and Equity – to emphasize the sustainability concepts and green aspects of MID. The projects that were funded though by the MID Fund (generally allocated with a budget of the order of Rs 100 to 200 million yearly) were predominantly environment related, with a greater focus on energy and water. It is noted that while the MID Commission – responsible to ensure finalization and timely implementation of the MID Action Plan and coordinate projects to green the economy - was under the Prime Minister's Office (PMO), the MID Fund was under the aegis of MoESD (having moved from the MREPU in 2010). It is likely that this set-up could have contributed to some coordination and collaboration barriers in the MID implementation until its disbandment in December 2014.

91. Sectorial Policies. Environmental measures during the review period were guided by sectorial policy measures that had meanwhile been developed. Key legislations and / or policy frameworks for the environmental sectors are listed in table 5**.** The Mauritius Environmental Outlook Report (2011) elaborates on the necessary actions to reduce the impacts of drivers of environmental change and to devote resources to implement existing policies and strategies, to ensure meaningful and beneficial national development.

92. According to the Second National Communications (SNC, 2010), overall greenhouse gas emissions are growing by 2.7% annually. However, gas emissions from the energy sector, a major GHG contributor, are increasing by 5.4% yearly. The Energy Efficiency Act 2011 was a major milestone that allowed the set-up of the Energy Efficiency Management Office, a new institution with the objective to promote efficient use of energy. The National Long Term Energy Strategy (2009-2025) had already set a target of 35% renewable energy in the energy mix of the country by 2025, and this target was reiterated by the government at the Rio+20 meeting in 2012.

Table 5: Key Environment Related Legislations / Policy Frameworks

Sector	Main Legislation / Policy Framework
Environment (including Climate Change)	Environmental Protection Act 2002 (& subsequently amended) Mauritius Environment Outlook Report, 2011 Integrated Coastal Zone Management Framework for the Republic of Mauritius National Programme on Sustainable Consumption and Production (2008 - 2013) Technology Needs Assessment, 2012 National Climate Change Adaptation Policy Framework for the Republic of Mauritius Intended Nationally Determined Contribution for the Republic of Mauritius, 2015
Waste	Environment Protection Act 2002 & Local Government Act of 2011.
Disaster Risk Reduction	DRR Strategy Framework and Action Plan (2012)
Beach Authority	Beach Authority Act 2002
Sustainable Development	Finance and Audit (Maurice Ile Durable Fund) Regulations 2008. Maurice Ile Durable Policy, Strategy and Action Plan, May 2013 Maurice Ile Durable Projects and Initiatives
Forestry	National Forestry Policy (2006),
Biodiversity (NPCS)	Islet National Park Strategic Plan (2004); National Biodiversity Strategy & Action Plan (2006-2015), National Invasive Alien Species Strategy and Action Plan (2009-2018),
Food Security (FAREI)	Food Security Fund Strategic Plan 2013-2015
Ocean Economy & Fisheries	The Fisheries & Marine Resources Act 2007 Aquaculture Master Plan 2007
Meteorology	National Meteorological Service Act
Public Infrastructure	Building Control Act 2012
Energy	National Long Term Energy Strategy (2009-2025) Energy Efficiency Act 2011 MARENA Bill 2015 Central Electricity Board Act 1963 Integrated Electricity Plan 2013–2022, CEB
Water	Central Water Authority 1971
Wastewater	Waste Water Management Authority Act 2000
Radiation Protections	Radiation Protection Act 2003

Source: Authors

93. The Central Electricity Board (CEB) designed a small scale distribution generation (SSDG) scheme in 2012, to provide feed-in-tariffs (FIT) for small power producers (mainly domestic)) to promote the production of renewable energy – mainly solar PV. Funds were allocated by MoFED, and channeled through the MID Fund, to support the CEB financially for the disbursement of the FIT.

94. The solar water heater (SWH) grant scheme is also a popular measure used to promote the use of solar energy to replace electric / gas water heaters for hot water production. According to an AFD sponsored study, some 58,900 households benefited from grants under the 3 phases of the solar water heater scheme, from 2008 to 2013. Costs to Government for the subsides amounted to Rs 612 m, and the penetration of solar water heaters increased from 7% of households to 22% during this period (Axenne, 2014). Several windfarm projects, totaling generating capacity of about 40 MW were under consideration during the period 2011-2014. Although Mauritius contributes less than 0.015% of global GHG emissions (INDC, 2015), the above measures contribute to restrict the growth of GHG emissions and to steer the country towards a greener economy.

95. In the waste sector, there is to date no segregation scheme or other effective strategy in place yet in order to effectively implement the Reduce / Reuse / Recycle concept. Rather, investment in an additional cell has been deemed necessary as the Mare Chicose landfill reaches its maximum capacity. The recent banning of plastic bags since January 2016 is a positive measure. Another challenge is that only about 2% of the 9,000 tons of e-waste generated yearly are being collected (UNEP, 2015).

96. Investment in wastewater infrastructure is among the highest in the government budget, yet progress has been slow in the completion of the Plaine Wilhems Sewerage project, in order to attain 50% coverage of the population with proper sanitation services. For a number of years, tertiary treated water from the state-of-the-art wastewater treatment plant at St Martin, commissioned in 2005, was not being utilized fully although it meets the standard for irrigation purposes. Secondary uses for treated wastewater can provide strong relief to reduce the stress on water availability. The use of decentralized natural waste water treatment systems should also be considered in future as they consume less energy and chemicals compared to the traditional electro-mechanical plants.

97. Non revenue water of the order of 45% is reported by the CWA for a number of years in their annual reports, and is considered a priority in the Government program (GoM, 2015). Additionally, demand side management and the water tariff are issues that must be reviewed to progress towards the goal of uninterrupted water supply to the population.

98. Although a large number of stakeholders had made valuable suggestions in the MID working groups, and a MID Strategy and Action Plan (MIDSAP) had been prepared by the consultants Mott McDonald, implementation of identified projects in the fields of sustainable development, environment and climate change has been below popular expectations during the period 2011 to 2014.

99. The poor execution of projects under the MID Fund during the year 2011 is attributable to the fact that the migration of the MID Fund from the MEPU to MoESD in 2010, following the elections of May 2010, has been a very slow process. Administrative delays in finalizing the new set up and the recruitment of new staff resulted in the MID Fund becoming operational again around October 2011.

100. The initial momentum provided in 2008 / 2009 to promote sustainability was not maintained in the subsequent years. At the political level, there was an apparent lack of commitment to implement aggressively the recommendations of the group of motivated stakeholders, partly due to

the financial resources that had to be made available. The measures mentioned in the budget (Table 7) represent a low proportion of the wide range of projects that had been identified in the MIDSAP. Resource allocation from MoFED was often mentioned as one of the constraints.

101. At the operational level, project implementation was slow and the % execution of available funds remained low, disregarding dedicated projects such as the solar water heater scheme or funding of feed-in-tariffs for renewable energy projects. While procurement is often cited as one of the main factors slowing down implementation, other reasons are likely to be project implementation capacity at MoESD during the period concerned and the lack of coordination arising from the institutional set up, with the MID Fund and the MID Commission not being located under the same ministry.

102. The proposal of the newly elected Government to revive the National Environmental Commission (NEC), chaired by the Prime Minister, provides a good opportunity for improved coordination. In many countries, implementation of environment projects is enhanced when it is backed by a high level ministry such as the Ministry of Finance or the Prime Minister's Office. This is likely to be the case with the revival of the NEC.

103. Climate change. In the field of climate change, Mauritius is 13th in the ranking of countries with the highest disaster risk and 7th for countries most exposed to natural hazards worldwide (World Risk Report 2012).

104. According to the Second National Communications (SNC), impacts of climate change are already felt through stronger cyclone events, heavier rainfall episodes, warmer temperatures, and reduced rainfall. Infrastructures, water resources, coastal areas, coral reefs, fisheries and other marine-based resources, agriculture, tourism, human health and biodiversity are among the sectors already impacted upon. Several economic sectors are thus directly threatened, such as tourism, highly dependent on the coastal zone, agriculture, likely to be affected by water shortages and temperature changes, and fisheries, highly sensitive to the increase in the sea surface temperature.

105. In terms of GHG emissions in 2006, 92% of total emissions emanated from two sectors - the energy sector is the largest source of emissions with a contribution of 65%, while the waste sector was the second largest contributor, with a share of 27% (SNC, 2010).

106. In its Intended Nationally Determined Contribution (INDC) submitted to the United Nations Framework Conference on Climate Change (UNFCCC) in 2015, , Mauritius highlights the mitigation and adaptation sectors and the nature of measures that are envisaged by 2030. Adaptation remains, as is the case for SIDs, the priority, as reflected in the extent of technical and financial support that the country "imperatively needs to abate its greenhouse gas emissions by 30%, by 2030, relative to the business as usual scenario". The financial support required, is estimated at USD 4 bn for adaptation and USD 1.5 bn for mitigation measures.

107. In the programme (2015-2019) of the newly elected Government it is stated that Government will come up with a Climate Change Bill and a new Climate Change Mitigation Strategy and Action Plan to address the major challenge of climate change. Additionally, in the recent Vision 2030 statement delivered by the PM, sustainable development is specifically mentioned as one of the four

key development pillars. The government, in its Vision 2030, is committed to adopting a responsible and environmentally sustainable policy regarding energy production, waste management and physical infrastructural development.

108. Despite the proclaimed target of achieving 35% renewables in the energy mix, the government was strongly considering a coal terminal for a new power plant of about 100 MW capacity during the period 2011-2014. This was considered a serious incoherence that was voiced out by environmental NGOs, resulting in the setting up of a National Energy Commission that made recommendations towards a green economy in October 2013 (National Energy Commission, 2013). Although the project was shelved by the new Government in 2015, consideration is now being given to lower carbon emissions alternatives such as Liquefied Natural Gas (LNG) in the medium term.

109. Investments in renewables as mitigation measures are not favoured because of higher costs in the short term, and are justified on the basis that Mauritius has no historical responsibilities for global warming, with a share of only 0.015% of global emissions. However, it should be appreciated mitigation opportunities will help the economy to move to a sustainable development pathway, for greater inclusive growth and poverty reduction, and to progress towards a green economy and low carbon development.

110. A National Climate Change Adaptation Policy Framework (NCCAPF) was formulated in 2012, to mainstream climate change adaptation into core development policies, strategies and plans for Mauritius. Recommendations included a National Climate Change Adaptation Policy, Climate Change Adaptation Strategy and Action Plan and a Climate Change Adaptation Investment Plan. Additionally, a Disaster Risk Reduction Strategic Framework and Action Plan was prepared in 2012 as part of the Africa Adaptation Program (AAP). It includes risk maps for regions prone to inland flooding, landslide and coastal inundation.

111. However, there are major barriers for implementation, which include the absence of a dedicated climate change legislation, lack of coordination and institutional capacity, and trained personnel in the field of climate change, insufficient financial resources and evaluation of economic risks, and lack of sensitization in the private sector (Republic of Mauritius, 2012).

112. There is little evidence that the various ministries have developed appropriate climate change strategies, following inputs received and documents reviewed during this study. A high level of awareness and concern was demonstrated by the CCD and the NDRRMC, and their initiatives for greater involvement of the local authorities must be supported with appropriate allocation of resources, for more effective decentralization of climate change responses.

113. The 2012-2015 Food Security Strategic Plan proposes mixed crop cultivation with an orchard, and the adoption of more environment friendly agricultural practices as a strategy to cope with climate change. While the Irrigation Authority claims an efficient use of water in its annual report, a negative environmental impact in the use of water for agricultural purposes is assessed in the UNEP (2015) study, which also highlights an intensive use of agro-chemicals to boost up productivity in the fields. The promotion of natural farming and organic production is however a priority for the Government (GoM, 2015).

114. A Sustainable Integrated Development Plan (SIDPR) was developed in 2009 for Rodrigues, which has an autonomous status and is also threatened by climate change. The share of production of electricity from wind farms was of the order of 8-10% during the review period, as a result of 4 wind turbines that became fully operational in 2011.

115. **Environmental Policy processes.** The need for an environmental policy is generally felt from the trend in scientific observations at global or local level. As an example, from the trend in the climate indicators shared by IPCC and backed up by local observations, the potential vulnerabilities of the country are detected.

116. Such policy decisions would be initiated at the level of the sectorial ministry, where a number of options would be developed and analysed regarding implications at a wider level. As part of the technical process, further studies and investigations may be required, depending on the complexity of the measures being considered. For example, the extent of the sea-level rise would be taken into consideration in designing measures to address the serious erosion affecting the coastline of the country. The scientific studies and research would also provide a baseline for future reference and for assessment of implemented measures with respect to clearly defined situations at a prior specific time.

117. At the relevant ministry's level, options are evaluated with a view to identify potential solutions that are in line with the government programme, and that will thus receive political support for implementation. For the elaboration of key policy measures, a mixed approach of top – bottom and bottom – top is generally used in consultations with a broad range of stakeholders, at public and private level, and interest groups representative of the society including NGO's.

118. The need for an environmental policy may be triggered by an event which has a significant negative impact – for example flash floods, or a prolonged drought - that often lead to a public outcry. The response in the form of a policy tends to be of a reactive nature, rather than proactive. The urgency to act is felt when significant impacts have already been recorded.

119. A different example is in the form of a recommendation by the SNC (2010) for the development of a national adaptation and a mitigation strategy, in the light of the increasing threats of climate change for Mauritius. A NCCSAP was developed in 2012 as part of the AAP programme.

120. At this stage, decisions by policy makers at the political level are required and cabinet approval will usually be sought where applicable. This has been the case recently, for the approval of the INDC of Mauritius and the decision to ban plastic bags as from 1 Jan 2016. In case a new legislation is required, the sector Minister would initiate actions to have the bill prepared and vetted by the State Law Office, prior to endorsement by the National Assembly.

121. At implementation stage, allocation of resources is planned as part of the budget process, with clearly defined targets and indicators, and finalised by MOFED, taking into consideration a number of factors. Monitoring and evaluation is necessary, in order to determine the appropriateness of the engineering solutions, and / or the effectiveness of the investment in resources to achieve the desired goals.

3.5. Environment related Budget measures 2011-2014

122. A summary of the environmental related budget measures, during the period 2011-2014, is provided in Annex 8 to highlight the policy orientations of the government at the beginning of the respective years.

123. **Energy.** Budget measures relating to energy and sustainable development were regularly announced, often specifying the link to the MID concept. The solar water heater scheme has been regularly promoted, and a greater emphasis on measures related to the business sector is noted in 2013-2014.

124. **Environmental Protection and Waste.** Cleaning and embellishment measures are regularly stated while the tax on plastic bags in 2011 as part of anti-pollution measures has signalled government intention to act more firmly on this pollution aspect.

125. **DRR.** Several Disaster Risk Reduction (DRR) measures are enunciated in 2014, in response to the tragic outcome of the flash floods on 30 March 2013. The setting up of the NDRRMC represents a major step in the new approach of government in this very important sector for adaptation to climate change.

126. **Water & Sanitation.** For several decades, the high proportion of non-revenue water has been a major weakness in the water supply system, and water related measures are consistently on the government's agenda of government. Wastewater and sewer systems are high budget programs that have been under implementation for a number of years.

127. **Ocean Industry and Fisheries**. The announced measures increasingly emphasize the need to exploit the resources of our immense maritime zone in a sustainable manner. Several measures were proposed in 2011-13 to promote marine life, coral reef farming, aquaculture as well as the fishing community.

128. While the policy measures highlighted in Annex 8 are in line with the national environmental priorities, it is felt that much more initiatives should have been undertaken, given the environmental challenges faced by the country. Additionally, a number of these announced measures were only partially implemented, or not implemented at all. There is no comprehensive list of such incomplete measures in the subsequent budget, although partial explanations may be obtained in the comments addressing the outcome indicators for respective ministries in the PBB Report of the following year.

4.0 Public Environmental Expenditure

129. Consolidation of the recurrent and capital environmental expenditures were challenging because of data availability challenge. While total environmental expenditures are clearly identified by ministries in the PBB, the capital environmental expenditures are available in the PSIP by economic function. It was difficult to merge by ministries the two types of expenditures.

130. The total expenditures listed in Annex 9 cover environmental expenditures related to some 26 Programs / Sub-programs / Parastatals, from 6 key ministries. The source of the data is mainly the Accountant General Annual Reports for the years 2011 to 2014. In a few cases, the data was obtained from the relevant ministries or from the Public Sector Investment Program, as annotated in Annex 2.

131. The figures under the column "% Envt" refer to the estimates of the proportion of the expenditures for the particular program that can be assumed to be related to the environment. For example, the 100% mentioned for Proram 401 indicates that the totality of the expenditures for this Program is assumed to be environmentally related, while the proportion assumed for Prog 441 is 25%. For the five other cases where data was sourced otherwise, the expenditure amount estimated is as reported, and the code A/R (meaning as reported) is inserted in the % Envt column.

4.1. Analysis of total government budget

132. Before we discuss the environmental expenditure, it is interesting to have a quick look at the total budget of the government. At the national level, two budgets are prepared, (i) a PBB (Consolidated) budget that is a three years rolling program-budget that includes all government expenditures (recurrent and capital); and (ii) PSIP budget that includes mainly capital budget of the Government. The Government budget is financed through its own resources generated by collecting taxes, and loans and grants. Table 6 presents the government budget in term of revenue and expenditure. Capital expenditure represents about 21.5% of the total expenditure. The share of Revenue in term of GDP during the period of study is almost constant, around 21.5%.

Table 6: Total government budget 2011 to 2014

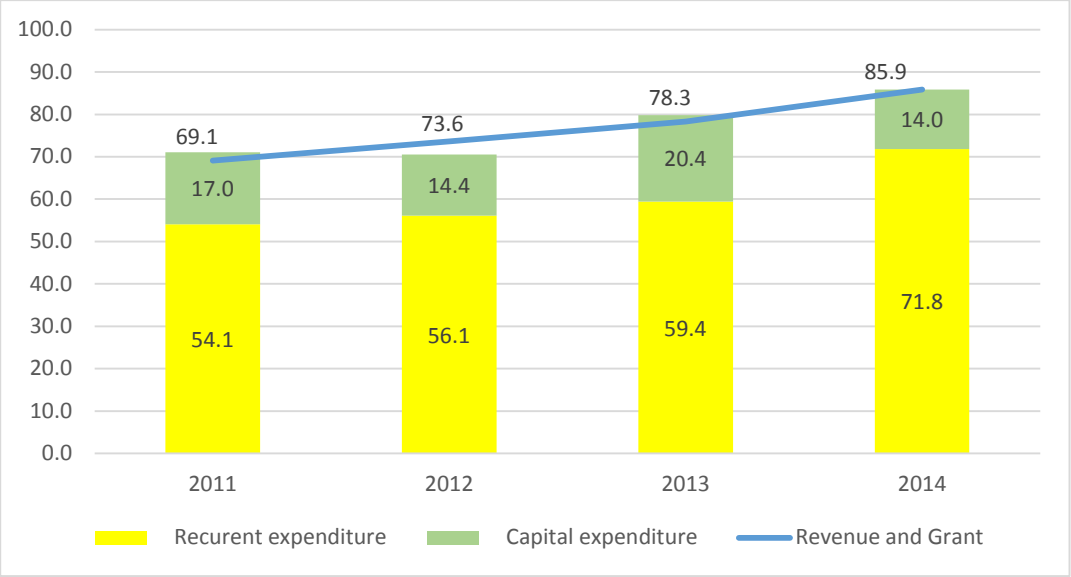
	2011	2012	2013	2014
		Rs Billion		
GDP, at current	323	344	366	394
Revenue and Grant	69.1	73.6	78.3	85.9
Total expenditure	71.1	70.5	79.8	85.9
Recurrent expenditure	*54.1*	*56.1*	*59.4*	*71.8*
Capital expenditure	*17.0*	*14.4*	*20.4*	*14.0*
		Share of GDP (%)		
Revenue and grant	21.4	21.4	21.4	21.8
Total expenditure	22.0	20.5	21.8	21.8
Recurrent expenditure	*20.7*	*20.6*	*20.9*	*22.7*
Capital expenditure	*6.5*	*5.3*	*7.2*	*4.4*

Source: IMF, data based on GFSM 2001 norms, Article IV Mission Reports for years 2011-2014

133. The Government budget has been increasing between 2011 and 2014 by an average of 7.5% per year. In 2011, the revenue and grant of the Government was Rs 69.1 bn and increase to Rs 85.9 bn in 2014.

134. While Government revenue and recurrent expenditure increase over the period, capital expenditure declined by 1.6% on average and recurrent expenditure increase by 10.6%. Figure 6 presents the total government revenue between 2011 and 2014 along with the break-up of the recurrent and capital expenditure. In terms of growth, the story is different especially for capital expenditure. While revenues and recurrent expenditure have been increasing during the period 2011-14, the capital expenditure has been decreasing on average by 1.6%.

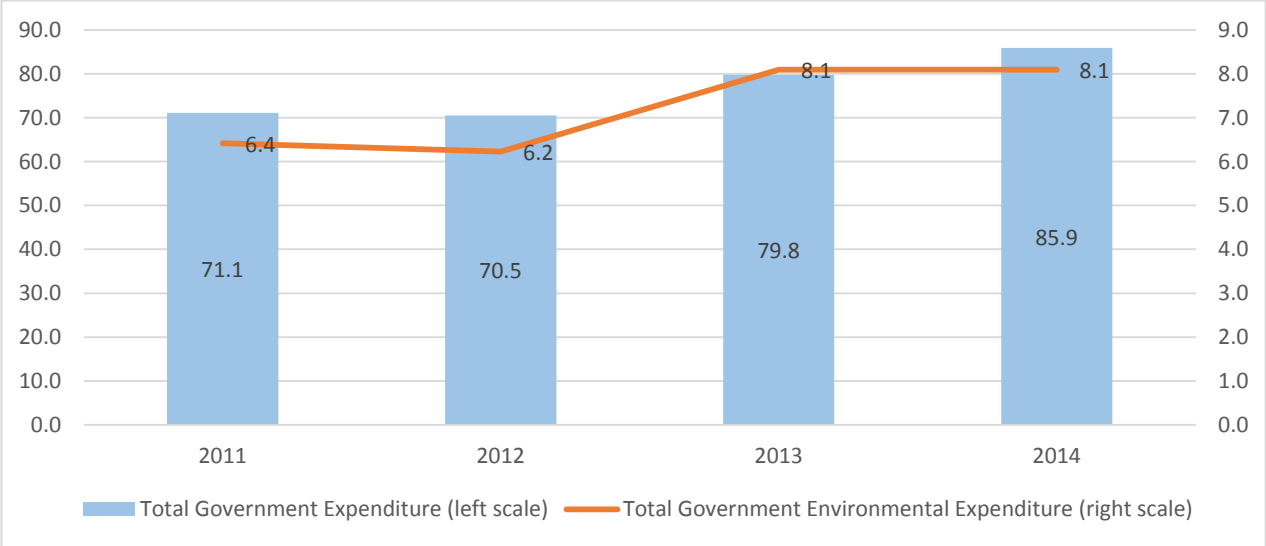
Figure 6: Total government revenue and expenditure 2011-14, Rs bn



4.2. Environmental expenditure

135. The total environmental expenditure represents about 2% of the GDP and has been increasing to 2.2% in 2013. Figure 7 presents the government total expenditure and the environmental expenditure between 2011 and 2014. While the environmental expenditure is small, compared to the GDP, it has to be noted that it has increased steadily between 2012 and 2013 by 17% while the increase was only 8% for the total expenditure.

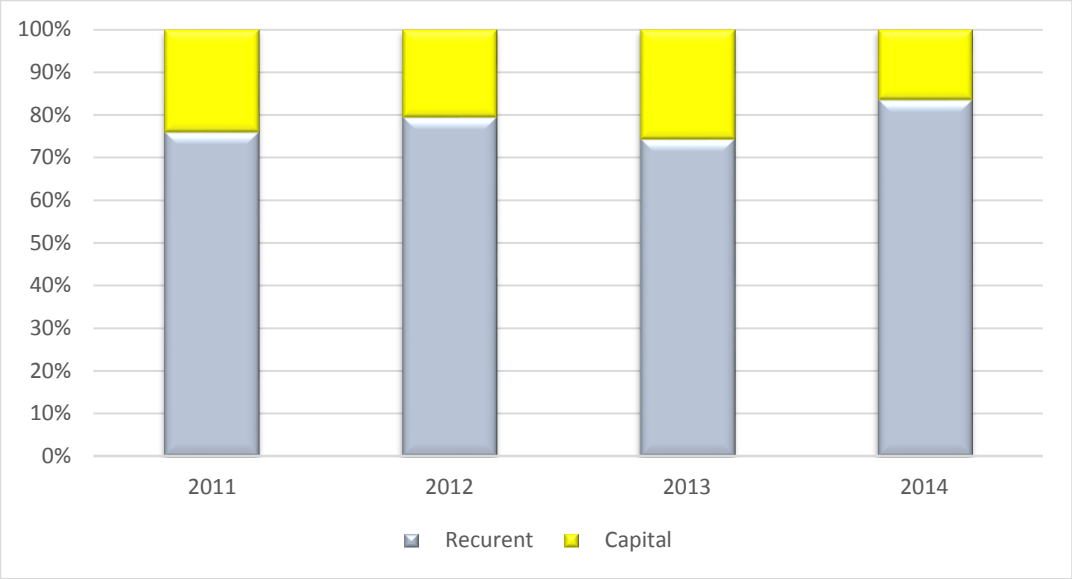
Figure 7: Total expenditure and environmental expenditure, 2011-14, Rs bn



Source: Authors

136. The capital and recurrent expenditure have a linear and slow growth rate over the period 2011-14 as presented in Figure 8. This aspect requires a deeper analysis to understand whether there is proper balancing between these two, as both these expenditures are linked. The analysis of the decomposition of the environmental expenditures shows that development expenditure from the ratio between them stays about the same (79% vs 21%). However, the environmental recurrent expenditure increase steadily in 2014 to represent about 90% of the total environmental expenditure.

Figure 8: Recurrent and capital environmental expenditure, 2011-14 (%)



137. The share of environmental expenditure in Mauritius is high. The total expenditures of Government increased from Rs 71.1 bn in 2011 to Rs 85.9 bn in 2014, representing an overall increase of 14 % over this four-year period. The environmental expenditure experiences a slightly higher increase from Rs 6.4 bn in 2011 to Rs 8.1 bn in 2014 that correspond to a growth rate of 26% over the same period compared to 22% for the total expenditure. The level of the environmental capital expenditure remained around Rs 2 bn over the period while the environmental recurrent expenditure increase by about Rs 1 bn.

138. The environmental expenditure in Mauritius is higher than those of other countries such as Mali (0.20% between 2004-11), Mozambique (1.5% between 2005 and 2010), Bhutan (2.6% between 2008-2013). Indeed, between 2011 and 2014, the environmental expenditure represents about 7% of the total government expenditure. This ratio is about 0.20% or 2.6% higher than for similar countries that implemented a PEER.

139. In a study in 2012, the Indian Ocean Commission reports that the percentage of the national budget dedicated to environmental issues for the South West Indian Ocean countries reviewed were

of the order of 1.7% for Comoros, 4.8% for Madagascar, 4.9% for Mauritius, 5.5% for Seychelles and 7.3% for Zanzibar (Commission de L'Ocean Indien, 2012).

140. The ratio between environmental expenditure and Gross Domestic Product (GDP) is an indicator of the importance of environmental protection relative to overall economic activity. The environmental expenditure varied in the range of 1.8% to 2.2% of GDP between 2011 and 2014, within the range of 1.4% and 2.5% that is recommended by the World Bank for developing countries (IIED). A study by the Overseas Development Institute (2008) indicates environmental expenditures as a % of GDP of 0.8% for Mali and 1.2% to 2.5% for Mozambique in 2007. The Government of Bhutan (2014) reports environmental expenditure of 2.6% of GDP and 7% of total public expenditure for the year 2011-12.

Table 7: Total Environment Expenditure in Mauritius, 2011 - 14

	2011	2012	2013	2014
		Rs Billion		
Total Government Expenditure (TGE)	**87.8**	**89.1**	**102.9**	**106.7**
Recurrent	66.8	70.9	76.6	89.2
Capital	21.0	18.2	26.3	17.4
Total Government Environmental Expenditure (TGEE)	**6.4**	**6.2**	**8.1**	**8.1**
Recurrent	4.3	4.3	5.0	5.4
Capital	2.1	1.9	3.1	2.7
		%		
TGEE as % of TGE	7.3	7.0	7.9	7.6
Recurrent	4.9	4.8	4.9	5.1
Capital	2.4	2.2	3.0	2.5
TGEE as % GDP	2.0	1.8	2.2	2.1

Source: Authors, based on Treasury's Annual Reports 2011 to 2014, which report expenditure on appropriation by National Assembly

4.3. Environmental expenditure by programs

141. The largest program related to the environment is Program 443 – Water Resources, with expenditures increasing from Rs 0.8 bn in 2011 to Rs 2.6bn in 2014. The high expenditures under this program is due to water infrastructure projects, of which the Bagatelle Dam is the principal one. This dam has become a priority due to water shortages in the Mauritius mainland, and a looming water stress situation ahead due to climate change. Annex 9 presents the capital environmental expenditure by program and ministries.

142. The second largest program is the Program 444 (Sanitation) with outlays of Rs 1.4 bn in 2011, dropping to Rs 0.7 bn in 2014. The expenditures are driven by capital investments for wastewater infrastructure, of which the Plaines Wilhems Sewerage Project is the main one.

143. The third program with the highest environmental expenditure is Prog 463, Solid Waste and Beach Management, with expenditures amounting to Rs 0.7 bn in 2011, increasing to Rs 0.8 bn in 2014.

144. The expenditures under the National Development Unit (NDU) relate to Program 405 (Land Drainage and Watershed Management) and Prog 404 (Community-Based Infrastructure and Public Empowerment). The combined relevant expenditures related to drainage and embellishment projects are displayed in Annex 9. The peak of Rs 1.38 bn in 2013, representing 17.7% of TGEE for that year, is due to emergency disaster management measures for drainage projects, as a result of the tragic flash floods of March 2013.

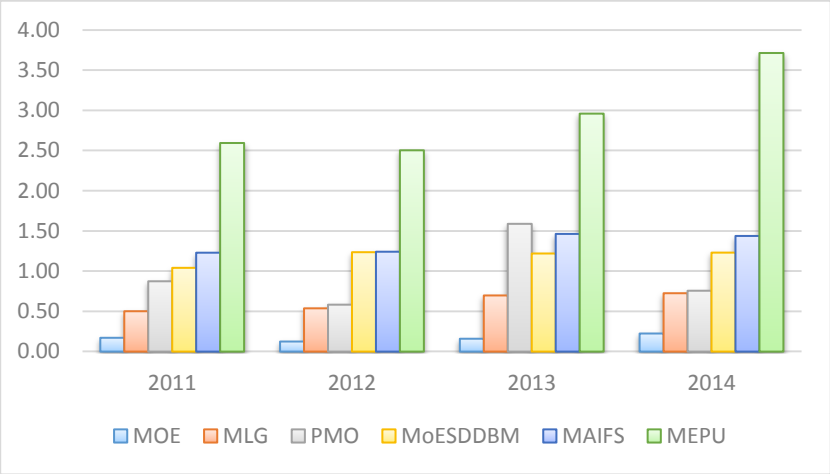
145. The environment related expenditures for the Local Authorities amount to Rs 502 m in 2011, increasing to Rs 538.2 m in 2012, Rs 698.4m in 2013 and peaking at Rs 726.1 m in 2014. These expenditures are mainly related to waste management, and drainage / cleaning that are carried out by the municipalities and district councils.

146. The environment expenditures for the above mentioned five programs represent a total of about 61,6% of TGEE, while the remaining 38.4 % are incurred by some 20 other programs as listed in Table 2. The share of the key ministries, under which these Programs are regrouped, are reviewed in the next section.

4.4. Environmental Expenditure under key ministries

147. The total environmental expenditures are regrouped according to the ministry they are attached as presented in **Annex 9**. The Ministry of Energy and Public Utilities (MEPU) is by far the largest ministry in terms of environmental expenditure, representing nearly 46% of TGEE in 2014. Environmental expenditures for MEPU increased from a level of Rs 2.6 bn in 2011 to Rs 3.7 bn in 2014, due to overall higher investments in infrastructure projects in the field of water and sanitation. The Ministry of Agro-Industry and Food Security is the next largest ministry, with expenditure that amounted to Rs 1.2 bn (19.2%) in 2011, and increased to Rs 1.4 (17.8%) bn in 2014. The environmental expenditures related to the MoESDDBM amounted to Rs 1.0 bn (16.2%) in 2011, and increased to Rs 1.2 bn (15.2%) in 2014.

Figure 9: Public environmental expenditure under key ministries 2011-14, (Rs bn)



Note: MoESDDBM=Ministry of Environment and Sustainable Development; | MAIFS=Ministry of Agro- Industry and Food Security; MOE=Ministry of Ocean Economy; | PMO = Prime Minister's Office; | MEPU = Ministry of Energy and Public Utilities; | MLG = Ministry of Local Government - Local Authorities

148. It is noted that the Solid Waste Division and the Beach Authority (Prog 463) were under the Ministry of Local Government during the period 2011-2014. The environmental expenditures - for waste and cleaning activities mainly - attributed to the local authorities, which are under the aegis of the Ministry of Local Government - amounted to Rs 502 m (7.8%) in 2011, and increased progressively in absolute terms to reach Rs 726m (9%) in 2014.

149. Expenditures associated with the Prime Minister's Office (PMO) were of the order of Rs 875 m (13.6 %) in 2011 and Rs 757 m (9.4%) in 2012. It shot up drastically to Rs 1.6 bn in 2013 (19.6%), when the expenditures of the NDU had a threefold increase to Rs 1.38 bn due to the flash flood.

150. The Ministry of Ocean Economy, Marine Resources, Fisheries, Shipping and Outer Island, had environmental expenditures of the order of Rs 172 m (2.7%) in 2011 and Rs 225 m in 2014 (2.8%).

151. There are potential environmental expenditures under other ministries that need to be identified and estimated. For example, during discussions with the Ministry of Public Infrastructure and Land Transport, during the field visit the climate proofing of roads and buildings were cited as examples where environmental expenditures could be justified. Similarly, the improvements obtained under the road decongestion programme contribute to a reduction in travel time and fossil fuel consumption. However, a fair estimate of such environmental expenditures could not be made. In the Ministry of Tourism and External Communications, more precision about the expenditures by the Tourism Authority aimed at embellishment could possibly lead to its consideration as environmentally related.

4. 5. Execution rate and budget variance analysis

152. In budgeting (or management accounting in general), a variance is the difference between a budgeted, planned or standard cost and the actual amount incurred. Variances can be computed for both costs and revenues. The concept of variance is intrinsically connected with planned and actual results and effects of the difference between those two on the performance of the entity. The term variance analysis refers to the process aimed at computing variances between actual and budgeted or targeted levels of performance, and identification of their causes. Some variances can be favorable while others can result in negative (adverse).

153. The comparison between actual and budgeted expenditure for environmental expenditure show important change during the period of study. Indeed, the execution rate of voted expenditures was lowest at 79.6% while it was at a peak in 2013 at 103.1%. Basically this was because of high emergency expenditures for land drainage after the flash floods March 2013. Table 8 presents the execution rate and the variance of the recurrent and capital expenditures for the environmental and total government expenditure in Mauritius between 2011 and 2014.

154. The trend of execution ratio is different for recurrent and capital expenditure. While capital expenditure execution rate is very high (around 110%) on average, the one for recurrent expenditure varies from 75.7% in 2012 to 94.6% in 2013. This pattern is completely different from the one for the total government expenditure. In fact, the highest execution rate seems to demonstrate the high priority that the government grants to the environment sector.

Table 8: Public Expenditure Execution rate 2011-14 (%)

	2011	2012	2013	2014
	(%)			
Total Government Expenditure (TGE)	**91.9**	**82.7**	**95.1**	**86.7**
Recurrent	94.0	87.7	95.9	93.8
Capital	84.1	64.7	91.8	59.2
Total Government Environmental Expenditure (TGEE)	**81.9**	**77.6**	**109.4**	
Recurrent	75.5	73.8	100.1	92.5
Capital	110.1	92.9	144.6	

Source: Authors

155. Firstl, the patterns of execution rate are different for environmental expenditures and total expenditure. While the execution rate is more stable for environmental expenditure, it fluctuates a lot for the total expenditure. This shows that the overall government expenditure is vulnerable to external support and not only government resources. Several other reasons can explain the change in execution rate including: (i) late release of funds by the donor, (ii) delayed procurement, (iii) delayed sourcing of consultants. As the procurement process is harmonized across ministries (Procurement Act), delay in procurement may be due to lack of proper understanding of procurement rules and lack of proper planning by line ministries.

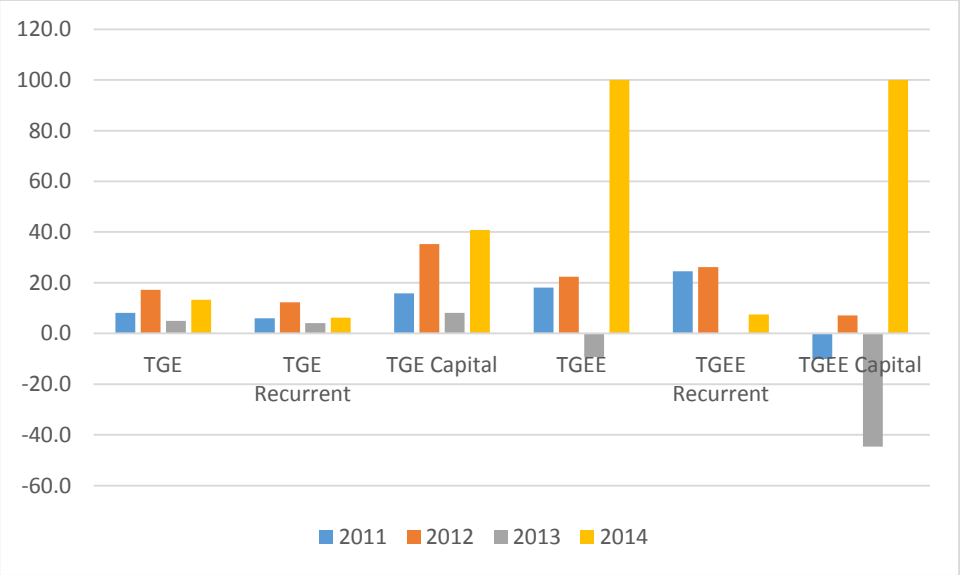
Recommendation 2:

Accelerate the procurement process by further disseminating it across line ministries and departments and ensure that adequate training is provided to build officer capacity and develop more efficiency.

A Procurement Act is in action and uniform across ministries. However, Slow execution of projects is often attributed to the lack of knowledge of the procurement process, which is usually carried out by the Departmental Bid Committee of the concerned ministry. This unit may not have the same priorities as the project / operations team, and the lack of technical skills in new technology areas can be a barrier. For ministries that have a substantial load of procurement, the provision of more resources, as well as capacity building for existing officers is recommended. An additional senior person / high-level officer in the finance department is proposed, in case a dedicated chairperson for the procurement committee is justified, in order to ensure timely follow up. More training is required across the board, so that committee members have a clear understanding of the terms of reference and how procurement procedures can be carried out in an efficient and timely manner.

156. Expenditure variance (see figure 9) is in general high for the capital compared to recurrent expenditure. This pattern is acceptable for the total government expenditure where the variance for capital expenditure range from 8.2% to 35,3% while the recurrent expenditure variance ranges from 4.1% to 12.3%. In general, a variance of 5% is the norm. However, when we look at the environmental expenditure, the variance for recurrent expenditure is very high (above 20%) while the variance for capital is negative. This pattern shows a greater predictability of financial resource for environmental projects.

Figure 10: Expenditure variance, 2011-14 (%)



Source: Authors
Note: TGE=Total Government Expenditure; TGEE=Total Government Environmental Expenditure

4.6 Expenditures related to Climate Change

157. The percentage of expenditures identified above have been assessed for the relationship to climate change based on the CPEIR methodology. For each Program / sub Program, the allocation of the environmental expenditures is based on the attributed share to adaptation and mitigation, as indicated under the % Adaptation / Mitigation column. The results of this allocation are listed in Table 14 below.

158. The main observation is that the share of adaptation expenditures is generally in the range of 76 -77%, while that of mitigation is of the order of 24-23%. The share for adaptation reached a peak of 79% in 2013, mainly due to the sharp increase in drainage expenditures due to disaster risk reduction response following the flash flood of March 2013. In absolute terms, the adaptation expenditures were of the order of Rs 5.0 bn in 2011 and Rs 4.8 bn in 2012, and increased to a high of Rs 6.4 bn in 2013 before dropping slightly to Rs 6.3 bn in 2014.

159. This breakdown confirms, in quantifiable terms, that climate change related expenditures in Mauritius are principally for adaptation, which is quite typical for SIDs. The major part of the mitigation related expenditure are from (i) the solid waste sector, where some 75% of Program 463 (which also includes the Beach Authority) have been assumed, (ii) the local authorities, which have reported expenditures of the order of Rs 502 m (2011) to 726 m (2014) yearly, where the bulk (over 87%) is related to waste management and (iii) from Prog 484 (Livestock Production), where the contribution of the expenditures of Rs 302 m to Rs 340 m, contributes towards reduction of GHG emissions in the livestock sector.

160. In the attribution of environmental expenditures to climate change, only the expenditures for radiation protection have been left out, on the assumption that the activities / projects under this program have minimal bearing on climate change.

161. In deciding the attribution of the expenditures for adaptation / mitigation, there is a fair degree of subjectivity as mentioned earlier, based on the interpretation of information available. Hence the need to seek inputs from public officials, to obtain maximum information and evidence.

Table 9: Climate Change Adaptation /Mitigation Relevant expenditures

Expenditures	% Adaptation	% Mitigation	Climate Change Relevance	2011		2012		2013		2014	
				Actual Expenditure (Rs m)		Actual Expenditure (Rs m)		Actual Expenditure (Rs m)		Actual Expenditure (Rs m)	
				Adaptation	Mitigation	Adaptation	Mitigation	Adaptation	Mitigation	Adaptation	Mitigation
Prog 401: Environmental Policy & Mgt	90	10	High	46.6	5.2	234.3	26.0	150.6	16.7	61.0	6.8
Prog 402: Envtl Protection & Conservation	90	10	High	96.2	10.7	141.1	15.7	133.7	14.9	123.8	13.8
Prog 403:Monitoring, Uplifting &b Emb of Envt	90	10	High	140.5	15.6	135.1	15.0	167.8	18.6	185.7	20.6
Prog 406: Sustainable Dev & Climate Change	90	10	High	0.9	0.1	2.1	0.2	1.8	0.2	2.5	0.3
Prog 463: Solid Waste Division	25	75	Low/Med	181.5	544.6	166.7	500.2	179.0	537.0	204.2	612.6
Disaster Risk Reduction	100		High	-	-	3.1		4.7	-	7.1	-
Total Expenditure - Min of Envt & SD				465.7	576.2	682.4	557.2	637.6	587.4	584.3	654.1
Prog 485. Forestry Resources	100		Med	170.9	-	172.5	-	181.9	-	184.8	-
Prog 486. NativeTer Bio Div & Conservn	100		Med	33.2	-	38.9	-	49.8	-	72.6	-
Prog 483. Dev Non Sugar (Crop) Sector	100		Med	502.4	-	486.4	-	580.5	-	572.2	-
Prog 484. Livesstock Production & Devlpt		100	Low	-	301.9	-	285.8	-	340.5	-	339.8
Prog 481. Policy Stagy Agro & F Security	100		Med	74.8	-	67.0	-	94.2	-	84.9	-
Prog 482. Competitiness Sugar Sector	100		Low	147.1	-	191.8	-	217.1	-	184.3	-
Total Expenditure - Min of Agr-Industry				928.4	301.9	956.7	285.8	1,123.4	340.5	1,098.8	339.8
MOI & Sub Prog 20108: Ocean Affairs & Devlp	100		Med	26.1	-	25.6	-	33.6	-	89.4	-
Pro 751: Policy & Strategy Fisheries	100		Med	21.4	-	17.4	-	21.5	-	21.9	-
Pro 487: Fish Dev & Mgt	100		Med	124.2	-	82.2	-	104.7	-	113.6	-
Total Expenditure - Ocean Economy				171.7	-	125.1	-	159.9	-	224.9	-
Programme 281: Meteorological Services	100	-	High	61.2	-	70.4	-	95.0	-	78.4	-
MID Commission - Sub Prog 20107	50	50	High	-	-	-	-	1.6	1.6	2.8	2.8
NDU: Prog 404 & 405	as reported		High	687.0	-	382.6	-	1,385.0	-	465.1	-
Total Expenditure RRA	as reported		High	126.7	-	130.5	-	105.9	-	208.1	-
Total Expenditure -PMO				874.8	-	583.5	-	1,587.6	1.6	754.4	2.8
441: Utility Policy, Planning and Management	5	20	High	2.7	10.7	4.9	19.7	5.0	20.0	2.2	8.9
443: Water Resources	100		Med	854.7	-	921.5	-	1,715.2	-	2,590.0	-
444: Sanitation	100		High	1,460.2	-	1,301.4	-	921.0	-	702.5	-
Prog 442: Energy Efficiency Management Office		100	High	-	0.7	-	21.4	-	30.6	-	48.4
Central Elctricity Board (CEB)		100	High	-	-	-	-	-	-	-	-
Central Water Authority (CWA)	as reported		Med / Marg	256.6	-	227.3	-	258.3	-	351.4	-
Total Expenditure -MEPU				2,574.2	11.4	2,455.2	41.1	2,899.5	50.6	3,646.0	57.3
Local Authorities (Min Local Govt)	as reported			-	502.0	-	538.2	-	698.4	-	726.1
Total Climate Change Expenditures				5,014.8	1,391.4	4,802.9	1,422.3	6,408.0	1,678.5	6,308.4	1,780.0
% Breakdown				78	22	77	23	79	21	78	22
Total Government Climate Change Expenditure (TGCCE)					6,406,199,893		6,222,134,241		8,081,811,186		8,081,346,522
Total Govt Envt Exp (with RPA)				6,071	-	6,061	-	7,827	-	7,298	-
Total Government Expenditure				-	87,816	0	89,102	0	102,924	0	106,693
% TGCCE / TGE					7.3		7.0		7.9		7.6
% TGCCE / GDP					2.0		1.8		2.2		2.1

Source: authors

162. **Level of relevance of climate change expenditures**. An assessment of the level of relevance to climate change, for the identified expenditures, was carried out. Most of the expenditures are assessed as high or medium level of relevance. For example, most of the programs of the apex ministry, the MoESDDBM, are considered to have a bearing on climate change. Under the PMO, all three programs are relevant to climate and the drainage programme may not have been designed explicitly for adaptation to climate change, but with the increasing threats of flash floods, such an upgrading is permitted in the CPEIR methodology (UNDP-ODI, 2012). Similarly, the projects in Rodrigues related to water are considered to be of high relevance, given the acute problem in this sector. The role and function of the Meteorological Department is considered highly relevant toward achieving climate change resilience for adaptation.

163. All the climate change related Programs of the MEPU, in the sectors of energy, water and sanitation, are considered to have a high level of relevance to climate change Medium levels of relevance are attributed to programs in the Ago-Industry sector. The waste activities of the local authorities only indirectly contribute to improve waste management at the national level, and are thus assessed to be of low relevance to climate change.

164. The CWA expenditures in capital projects that were implemented to address the water stress situation, are considered to be of medium relevance, whereas those related to water treatment / laboratory are considered as indirectly contributing towards adaptation. Other expenditures incurred by the CWA for the operational aspects for the exploitation of water, a natural resource, have not been considered as environmental / climate change related.

165. There is scope to identify more climate change related expenditures in activities / projects of several other ministries. For example:

- Expenditures made specifically towards climate proofing of roads, bridges and building at the Ministry of Public Infrastructure and Land Transport would be of high relevance for adaptation, and also for mitigation in case of buildings. Also, road decongestion programmes that result in significant reduction in travel time and consumption of fossil fuels are of high relevance level for mitigation
- Expenditures related to research projects (e.g. at the Mauritius Research Council, University of Mauritius, University of Technology of Mauritius) aimed at improving resilience to climate change or reducing GHGs are of high relevance.
- In the health sector, projects aimed at sensitisation and addressing diseases that are likely to increase due to climate change are of high relevance to adaptation
- In the Ministry of Education, projects aimed at climate change sensitization are highly relevant. The methodology also permits the classification of education expenditures as low relevance (UNDP-ODI, 2012), on the assumption that with higher education, there is an indirect contribution as the population becomes more receptive and adopt more appropriate behavioural changes for adaptation to and mitigation of climate change.
- In the Ministry of Social Integration and Economic Empowerment, social programmes to reduce poverty have a bearing on climate change. As the poverty level is reduced, the vulnerable population is more likely to adopt a behaviour that will contribute to adaptation to climate change or to the reduction of GHG for climate change mitigation.

- In the Industry Division of Ministry of Industry, Commerce and Consumer Protection, projects associated with energy and resource efficiency to promote cleaner production are of high relevance to climate change mitigation.

Recommendation 3:

Create mechanisms and procedures within the Climate Change Division to efficiently communicate and disseminate pertinent information to sensitize and create awareness across all economic sectors

Dissemination of information and communication on environment and climate change play a very important role in creating awareness and sensitization, as well as making available pertinent information to a number of economic sectors (e.g. agriculture, construction, tourism, health, energy sector, etc.) for proper action upfront.

Various ministries have different roles and the CCD should be provided with adequate resources to enable communication and coordination with the other sectors for coherent messages to the population at large. The Climate Change Information Centre (CCIC) and the CCD website needs to be upgraded, with graphics and user-friendly features, to improve the quality of the communication.

More collaboration is recommended between CCD and other ministries, so that public officers can be trained and empowered to mainstream climate change in their respective fields. CCD should have the resources and be organized to provide capacity building trainings, tailored to the needs of respective ministries, for appropriate planning, action and monitoring in climate relevant areas for each ministry

4.7. Environment expenditure sources

166. At COP 21, the developing world insisted on the necessity for developed nations to maintain the previous commitment of USD 100 bn yearly, from 2020, as support for their needs related to climate change. In this context, it is interesting to identify where the funds utilized for related expenditures in Mauritius come from.

167. The main projects where foreign grants have been received and the use of funds yearly are listed inn Table 15 below. Total revenue from international grants, as utilized during the period 2011-14, are in the range of Rs 32 m (2013) to Rs 113.6 m (2012). A comparison with the TGEE, show that the foreign grants represent a high of 1.8 % in 2012, and a low of 0.4% in 2013.

168. It must be mentioned here that a number of internationally funded projects are not captured in these records. For example, the AAP project (USD 3 m funded by JICA) implemented during the period 2010-2012 and the GEF-UNDP funded project Removal of Barriers to solar PV in Mauritius

(USD 2m) under implementation since 2013, are not referenced. Such types of discrepancy need to be addressed, through a better coordination between the sector ministry implementing an externally funded project and MoFED. A procedure is already in place for the coding of such projects, as shown in Table 10 below.

169. Overall, the inference from Table 10 is that the environmental / climate change related expenditures are being funded mainly from government own funds. This is quite different from the case for a number of countries in the Asia Pacific region that were reviewed by Miller (2012). The share of government funds reported are 23% for Bangladesh, 87% for Cambodia, 56% for Nepal and 59% for Samoa.

Table 10: Foreign grants – environmental sector

Code	Description	Climate Change Adaptn / Mitign	Foreign Grants in Environmental Sector (Rs million)			
			2011	2012	2013	2014
131	Grants from Foreign Governments					
13110501	Government of Japan	A	3.5	49.5	16.5	
132	Grants from International Organisations					-
13210003	GEF - Persistent Organic Pollutants		0.3	1.2	0.5	0.7
13210004	GEF - Energy Efficiency and Conservation	**M**	9.2	6.4	5.3	6.6
13210040	GEF - Nationally Appropriate Mitigation Action	**M**				
13210041	GEF - Third National Communication	M & A				0.4
13210042	GEF - Water Resources Management in Indian Ocean					
13210060	EU - Mauritius Fisheries Partnership Agreement	A				12.3
13210760	UNEP - Global Fuel Economy Initiative	**M**				1.1
13210780	Multilateral Fund - HCFC Phase out Management					0.6
13220617	EDF - Global Climate Change Alliance	**M**	55.4	53.9		
13220619	EU - Water Sector Development in Rodrigues	**A**				
13220720	UNDP - Protected Area Network Project	**A**	0.3	2.6	9.7	24.6
13220801	AFB - Climate Change Adaptation Programme	**A**				6
TOTAL GRANT from Foreign Govt and international Orgns			**68.6**	**113.6**	**32**	**52.3**

170. **Comparison of climate change expenditures with other similar countries.** In this section the climate change relevant expenditures of a few countries are highlighted, although it is very difficult to make a comparison between any two countries, because of differences in their economy. Table 11 below presents the climate change expenditure for selected countries..

171. The percentage of climate relevant expenditures for Mauritius during the period 2011-2014 is in the range of 7% to 7.9%. Comparatively, this percentage is lower than the percentage of

Cambodia and Samoa (14% and 15%) and higher than those of Nepal (6.7%), Bangladesh (5.5 – 7% in 2010-11), and much higher than for Thailand (2.7%).[9]

172. As regard GDP, the percentage of climate relevant expenditures for Mauritius is about 2 % during the period 2011-2014. This is comparatively closer to Cambodia (3.1%) and twice the level for Bangladesh (0.9% in 2010/11) and about 4 times the level for Thailand (0.5%).

173. Differences in national circumstances can account for differences in levels of climate relevant expenditures. A high proportion of development expenditures tend to drive up climate relevant expenditures (Miller, 2012). The size and distribution of climate-relevant expenditures is not seemingly being affected first and foremost by considerations of climate change policy, but rather more generally by the overall composition of the budget. This appears to be the case for Mauritius also, as the identified environmental / climate relevant expenditures are mainly driven by national priorities in fields such as water, sanitation, drainage and solid waste amongst others.

174. As the economy of a country progresses, there is tendency to shift from external public financing to internal private finance. For example, in Thailand, high investments in the field of renewable energy and public transport in the form of public-private partnerships are not reflected in the budget (Miller, 2012).

Table 11: Climate relevant expenditure as a % of budget and GDP for selected countries

Country	Headline statistic (as % of budget)	Headline statistic (as % of GDP)	Comments on how data captured
Nepal	6.7 %	1.8%	• Limited to 10 Ministries 'likely to undertake activities relevant to climate change on a functional basis' • Does not include 'off-budget' donor support
Bangladesh	5.5 – 7.2 % (2010/11)	0.9% (2010/11)	• Analysis identified 37 out of 57 ministries or divisions that had climate relevant expenditure • Does not include 'off-budget' donor support
Thailand	2.7 %	0.5%	• 14 Ministries 'had a climate programme in the period reviewed' • Does not include 'off-budget' donor support
Cambodia	14.9 – 16.9 %	3.1 – 6.9%	• Analysis of budgeted expenditure covered all Government programmes and projects • Includes 'off-budget' donor support
Samoa	15 %	6 %	• Analysis of budgeted expenditure covered all Government programmes and projects • Includes 'off-budget' donor support

Source: From Bird et al. 2012

9 Differences can arise from the flexibility in the methodology and the capture of data. For example, if the low relevance share due to climate proofing of roads is not included in Cambodia, the percentage of Climate Change relevant expenditures would drop by 3 - 4 %. The way public expenditure is defined affects the analysis, as for example in Thailand, there are 95 extra-budgetary funds which are thus not captured under the CPEIR analysis.

175. In the five countries above, it was noted that between 60 – 80% of climate change relevant expenditures are made within 3 ministries (Miller, 2012). In the case of Mauritius, this is also true as climate change expenditures of MEPU, MAIFS and MOESDDBM represent around 76% of the climate relevant expenditures.

176. In Mauritius, environment relevant expenditures are dominated by investments in water and sanitation infrastructure. Comparatively, in Cambodia and Samoa, the dominant expenditures are in transport infrastructure that are deemed to be 'climate proof', while in Thailand, it is the investments in irrigation infrastructure (Miller, 2012).

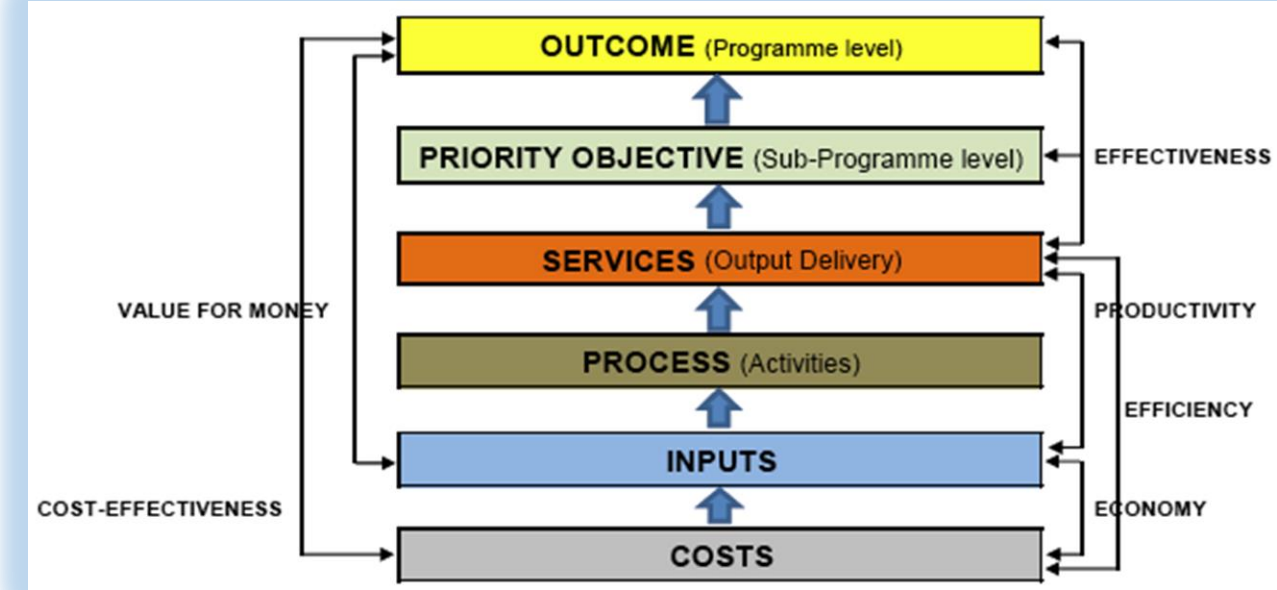
177. As regards the proportion of climate expenditures spent on adaptation and mitigation, Miller (2012) reports that for Bangladesh, Nepal and Samoa, "there has been a relatively consistent breakdown of 70%-80% allocated for adaptation and 20-30% for mitigation". The proportions computed for Mauritius in Table 9 above – 77 to 79% for adaptation, and 23 to 21% for mitigation – are equally in this range, as is the case also for SIDs. Surprisingly this range is also true for Thailand, where mitigation is an explicit priority for its government. This may be explained by the role of the Thai government as facilitator, to promote private investment in the fields of energy efficiencies and renewable energy (Miller, 2012).

5.0 Public Expenditure Effectiveness and Efficiency

5.1. Expenditure effectiveness and efficiency

178. This section discusses the efficiency and effectiveness of the PEE. Efficiency is measured by how inputs are converted into outputs or project/program deliveries. Effectiveness measures how the output delivered is transformed into behavior change or outcome (refer to Figure 11).

Figure 11: Result chain



Source: Mauritius PBB manual

179. **Environmental Expenditure efficiency**. Assessing expenditure efficiency means, as shown in Figure 11, describing the extent to which the inputs (time, effort or cost) are well used to deliver the expected outputs. It is often used with the specific purpose of relaying the capability of a specific application of effort to produce a specific outcome effectively with a minimum amount or quantity of waste, expense, or unnecessary effort. Another school of thought define "efficiency" as an input output ratio, such that is the output is more than the input, the result is efficiency, if not it is inefficiency.

180. Assessing efficiency means to find the link between costs and outputs delivered. During the field mission, the team requested from each government official met a project information sheet or the logical framework of projects in the PBB or the PSIP. This information would have helped the team to assess the relationship of costs-outputs. Unfortunately, after several requests, the team did not receive any project information from most of the stakeholders, other than the ones published by the Accountable General report. This shows that either the staff were not knowledgeable in terms project management or there is no documented project sheet. If the latter is true, this raises several questions regarding the robustness of the projects financed by the government.

181. **Effectiveness** Effectiveness relates to how the outputs delivered by the project turn into a change of behavior of the beneficiary population or the achievement of the outcome. The objectives of the various laws and policies in the environment sector point towards economic enhancement of the livelihoods of the population.

182. However, reporting on outcome achievement is very challenging. The team used the Accountant General's report on the budget to assess the achievement of the projects. However, the team noticed a confusion between output and outcome indicators. Most of the outcome indicators are in fact output indicators. For instance, for Programme 401, an outcome indicator cited is "Enhanced environmental protection and conservation of natural resources".

183. In addition, as per the Annual Report of Treasury, we note that most of these indicators remain unachieved. For instance, the programs 402 and 403 under the Ministry of Environment, are considered for the period 2013 and 2014. for consistency purposes given that there were no changes in the indicators during these two years.

Table 12: Under achievement of environment projects

Year	Programme 402- Outcome indicator	Achievement rate	Programme 403- Outcome Indicator	Achievement Rate
2014	% of degraded coastal sites restored and maintained.	29%	% of identified public sites rehabilitated and maintained	50%
2013	% of degraded coastal sites restored and maintained.	20%	% of identified public sites rehabilitated and maintained	50%

184. TABLE 13 Table 13 shows that during this period, resources allocated were not fully utilized, although the execution rate averaged 80-90 % with a low of 59% for Program 402 in 2014. In the absence of precise explanations, it may be inferred that the required resources were not properly estimated, or that efficiency in the use of resources was actually poor.

Table 13: Program 402 – 403's Execution Rate

	Programme 402			Programme 403		
Year	Budget (Rs m)	Actual (Rs m)	% Execution	Budget (Rs m)	Actual (Rs m)	% Execution
2014	234	137.8	59	237	206.3	87
2013	179	148.3	83	205	186.5	91

185. In the absence of detailed information about the projects being implemented (project documentation, objectives, inputs required, outcomes expected, output indicators, Log frame, etc.) it

is difficult to make a reliable assessment of the efficiency and effectiveness. As an example, UNDP projects need to be appropriately documented prior to be granted resources by the funding agency (such as GEF, AF) and approval by the national government. Additionally, the project fund includes resources – often of the order of 3 to 4% - earmarked specifically for the monitoring and evaluation framework from which Mid Term Reviews and Terminal Evaluations are conducted according to well defined guidelines.

Recommendation 4:

Strengthen the capacity of the staff in project management, especially the design of logical framework and the design of result chain.

The account General report on budget management shows at the section DD the report of project implementation. However, the team noticed that there is lack of information on outcome and output indicators. It is then suggested that the capacity of the staff be strengthened in project management. This will allow a better project design, implementation and reporting.

186. In the recently prepared Mid Term Review of the UNDP Country Programme 2013-2016, it is stated in the assessment of Pillar 3 that "in general, the external evaluations have been mostly positive with relative good marks in relevance and effectiveness". A list of the environment related projects is extracted from Table 3 – Project Portfolio of Pillar 3 of the MTR report, and included as Annex 5. The first 8 projects listed are all relevant to the period under review, and these projects have been implemented by the ministries responsible for environment (2), energy (4) and agriculture (2). It is interesting to note that most of these projects have been assessed as moderately positive or positive (UNDP, 2015a).

187. The MTR specifically mentions that for UNDP/GEF: Project Sustainable Management of Persistent Organic Pollutants in Mauritius, (implemented by MoESD) that all intended outputs and outcomes of the project were achieved. For the UNDP/GEF Project: Removal of Barriers to Energy Efficiency and Energy Conservation in Buildings (implemented by MEPU), that the project achievements went beyond its initial targets. It can be inferred that positive ratings are achievable, especially when the implementation of well designed and documented projects is supported by international development agencies.

188. Regarding efficiency aspects of the Pillar 3 projects, the MTR assessors state that Project design and project management could be the main reasons for the delays in implementation. Possible bottlenecks include difficulties in recruiting and retaining qualified staff, lengthy processes for muti-stakeholder participation and equally for procurement where public officers may be overly cautious. Consequently, the MTR team recommends, that best practice project management approaches be promoted to all agencies, and improved procurement exercise (UNDP, 2015a).

189. To strengthen the efficiency and effectiveness of public environment expenditure it is necessary to improve the institutional mechanisms for environmental management, the resource allocation procedures and the capacity of the resource mobilization unit to tap into international funds.

Recommendation 5:

Develop a process and the procedures to evaluate all projects through the "lens of Climate Change" taking into account short, medium and long term projections, risks and benefits for the country.

Develop a project evaluation team and a monitoring and evaluation framework to ensure the monitoring, efficient implementation and evaluation of all environmental and climate change projects.

Project appraisal for climate compatibility. All major project investments should be screened and appraised with a 'climate lens', to ensure that that a fair consideration has been given for climate proofing, taking into consideration short, medium and long term climate change projections for the country. Increase in initial costs should be evaluated using the life-cycle approach, taking into consideration higher risks related to climate change in future.

In this context, the Ministry of Public Infrastructure and Transport should study the possibility of amending the Project Request Forms that would address climate change related issues, as well as the impacts of projects on climate change, with the support from the Ministry of Environment in the drafting of the appropriate text

Recommendation 6:

Promote decentralization of programs and projects to local levels so that they too can deliver climate change benefits

The decentralization of measures at the level of local authorities will contribute to enhance resilience to climate change adaptation, as a function of the exigencies of their respective locations. It is noted that guidelines for mainstreaming climate change have already been developed as regards building and land use permits issued by local authorities.

NDRRMC is already taking the lead to decentralize the management of disaster risk reduction, as mentioned earlier. Local government officials need to become more sensitive and aware of the need to mainstream climate change in their respective strategies and development plans.

Recommendation 7:

Create a framework that allows the identification of climate adaptation and mitigation projects that clearly defines the expected outcomes (economic, social, capacity building, environmental, etc.).

More precise labelling of Programs / Projects / Activities. In order to readily identify environmentally related programs / projects / activities, and their relevance to climate adaptation and mitigation, it is recommended to have a clearer description of programs for such expenditures in general, and more specifically in ministries such as Health / Public Infrastructure / Land Transport / Education / Social Integration. All projects should have a project brief that is available on line, and that clearly spells out expected economic, social and environmental outcomes. Capacity building of relevant public officers will be needed, so that they can implement this task, which will also be associated with the implementation of the climate coding. NDRRMC is already taking the lead to decentralize the management of disaster risk reduction, as mentioned earlier. Local government officials need to become more sensitive and aware of the need to mainstream climate change in their respective strategies and development plans.

5.2. Institutional Set up

190. According to the Government Programme 2015-2019, sustainable and eco-friendly development ranks high on the agenda of Government and the institutional set up will be revamped by reviving the "National Environment Commission (NEC) to create better synergy among the various stakeholders to address important environmental concerns and issues" (GoM, 2015). This is an important step as it will ensure high-level engagement and provide policy guidance.

191. In order to serve the NEC, it would also be appropriate to set up a technical committee attached to the NEC which will serve as a secretariat. This secretariat could also seek financing (which could be from the budget, donors or the private sector or CSR). ensure that cross-cutting matters are taken on board, assess and make recommendations to the NEC and monitor the implementation of recommendations made by NEC. The technical committee would best be located at the MoESDDBM.

192. There are several reports on the environment sector which have been prepared by consultants at different levels and with varying recommendations. However, very few recommendations have been implemented so far for reasons such as insufficient financing, the impracticality of implementing some measures, the outcomes of implementing some measures are not clear and changes in circumstances, which make some recommendations obsolete. In order to avoid such occurrences, it is proposed that each Ministry, conducting environment-related activities, should work out a list of priority projects, which includes technical assistance for policy advice, support for project development and funding applications or capacity building wherever required. Pipeline projects should take into account all previous studies.

193. For better coordination, it is proposed that all ministries likely to have a substantial relevant work load should be equipped with an environment / climate change desk, with whom the secretariat of the NEC would be regularly liaising. This will also help to comply with the forthcoming requirements of UNFCCC relating to monitoring and reporting guidelines in line with COP 21.

194. The technical committee to the NEC would scrutinize the list of priority and pipeline projects in order to ensure that there is no duplication. The list could then be streamlined and recommended for validation by the NEC.

195. Subsequently MOFED would be approached for possible financing for the priority and pipeline projects. This financing could be sought from local resources or external financing.

5.3. Review of the integration of environmental objectives within the budgeting process

196. The Mauritius government is using for a while MTEF to design its annual and medium term budget. The process of designing this budget has already been discussed above. MoFED is the only ministry playing the coordinating role for the budget elaboration. The team did not find evidence that the MoESDDBM is consulted by MOFED to coordinate environmental expenditure for the whole country.

197. Based on experience from OECD, Armenian and Uganda, the team proposes the following steps to increase the coordination of environment the budgeting process.

(i) MTEF design and implementation. MOFED should include the MoESDDBM as a coordinated institution during the elaboration of the MTEF. Indeed, since several other institutions have significant environmental spending, it is crucial to improve the coordination. In addition, the MoESDDBM should be fully associated in the MTEF implementation. This will ensure better integration of environmental and climate change concerns at budget planning level.

(ii) As a part of a coordination mechanism, the MoESDDBM should develop sector strategies and programs (including agreeing on objectives, outputs and targets as well as costing of programs and sub-programs) as the key entry point for the environmental ministries in the MTEF process. Based on the budget allocation received at sector level, the MoESDDBM and other sectorial ministries will then need translate the sector program into annual plans and budgets.

(iii) The MoESDDBM should also coordinate the costing of the various environmental programs. Once the coding system proposed has been established, data for budgetary allocation and actual expenditure related to climate change could be easily retrieved from the Treasury Accounting System and trend analysis conducted.

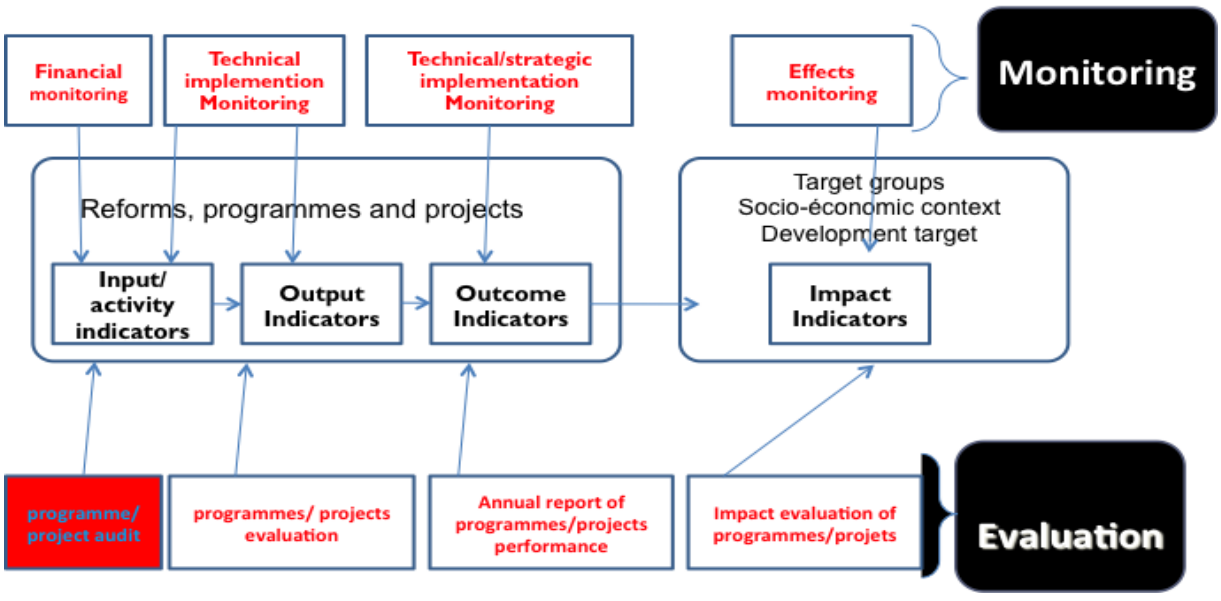
5.4. Monitoring and Evaluation

198. This section presents the environment sector Monitoring and Evaluation (M&E) Plan. (M&E) is essential for a results-based approach to program management. It is a key component of program design and remains incorporated into all facets of the program cycle through to program closeout.

199. The main objective of the M&E is to measure progress during each stage of activity implementation and thereby identify required adjustments to maximize project success and achievement of project goals. Monitoring & Evaluation is a process of ongoing gathering of information and its analysis, in order to determine whether progress is being made towards pre-specified goals and objectives, and to highlight whether there are any unintended (positive or negative) effects from a project and its activities.

200. The M&E plan includes a monitoring component indicating how program outcomes will be assessed and tracked using quantitative, objective and reliable data. Specific, precise indicators corresponding to project objectives, outcomes, outputs and milestones. Indicator target values are also aligned with anticipated program implementation. Performance indicators help in assessing implementation progress and are chosen at each level of the result chain.

Figure 12: M&E Indicators in the result chain

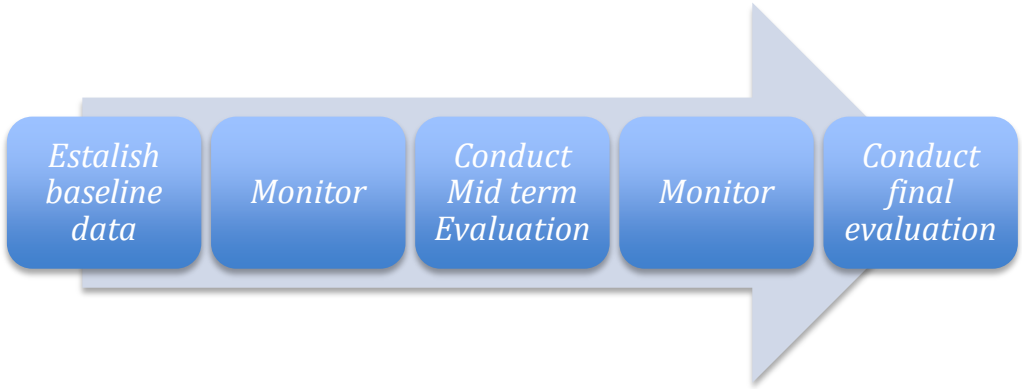


201. While indicators are derived from the economic analysis, baseline values and target values are derived from the economic analysis. For some indicators, baseline values will come from administrative data or from surveys or specific data collection. Target values and definitions will be validated by technical experts and by activity implementation teams.

202. **Baseline Data Collection**. The baseline study is intended to provide program with detailed baseline data on key project indicators to enable changes in projects' beneficiaries to be measured over the course of the project. Baseline data must be collected for each indicator before the start of the program implementation. The baseline collection must be the opportunity to strengthen each

Indicator information sheet to ensure the correct definition, data availability and formula. It will also include the disaggregation of the indicator. These data will serve as the starting point against which to measure change. Figure 13 presents the main steps of the M&E implementation. The baseline study is the first step for M&E implementation. Once the key indicators for the M&E have been selected, baseline data for each of these indicators must be collected. This will allow projects team to determine targets throughout the life of the projects.

Figure 13: Baseline data is the first step of the M&E implementation



203. The key responsibilities of the M&E team include:

- Implement the present M&E plan that integrates data collection, analysis, verification, validation and centralization of the performance indicators information.
- Develop training material and deliver training on the M&E procedures, data quality controls and verification to be delivered to any ministry having environmental expenditures
- Disseminate information and project results, performance and impacts to the broader public and thereby contributing to transparent communication on the Strategy.
- Develop and implement a data quality control strategy including both internal and external reviews
- Develop annual M&E work plans and provide semi-annual work plan updates.
- Ensure that data collection requirements and coordination needs are incorporated in the terms of reference of all project consultants and contractors.
- Facilitate the work of the impact evaluation team mainly by supporting the preparation of their missions and request for meetings, and by incorporating their suggestions and recommendations related to data collection. In addition, the M&E team will coordinate with the impact evaluation team in disseminating the evaluation results.
- Support coordination and collaboration for knowledge sharing initiatives and dissemination of Program performance information.

204. **Management Information System.** The M&E plan should be supported by an information system to be designed. The M&E expert will have the responsibility to coordinate and aggregate the

M&E information system. In addition, he/she will keep update the indicators up to date at all levels of the M&E.

Recommendation 8:

Established a M&E system at the ministry of Environment

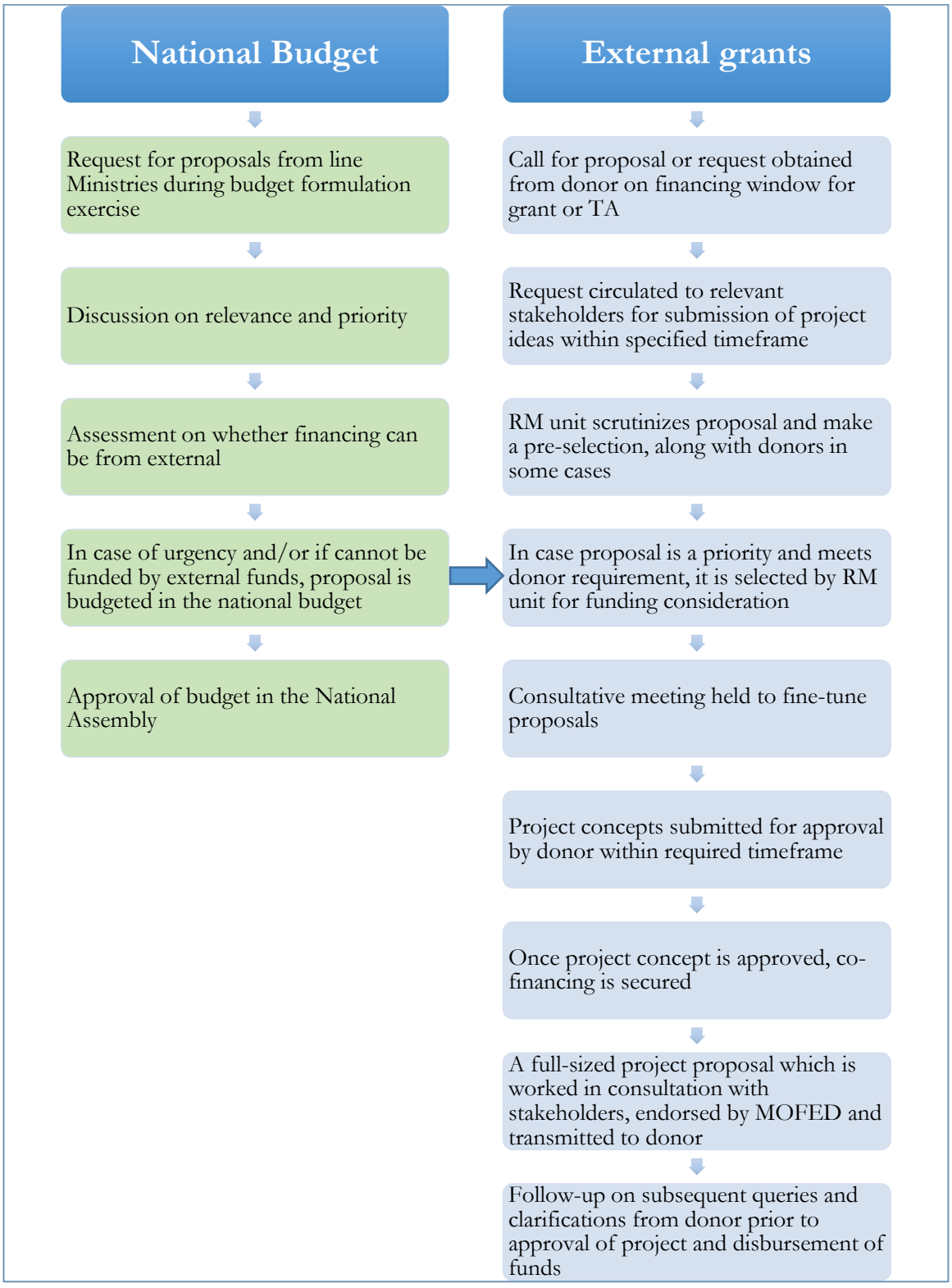
A dedicated focal person should be designated to be the M&E expert at the ministry of Environment to continuously maintain and update the M&E system and the Public Environmental Expenditure (PEE) database.

5.5. Resource mobilization process

205. Currently, the process for allocation of resources is as described in the flowchart below (Fig 12) below. In the preparation of the yearly budget, the sectorial ministry initiates proposals to MoFED, taking into account their policy priorities. MoFED may consider the use of external funds in case the proposal is in line with the requirements and availability of funds from a donor agency.

206. As a result of the strengthening of the NEC, the Technical Committee would contribute to improved coordination among the relevant ministries and a much smoother process for the allocation of resources in line with national priorities.

Figure 14: Resource Mobilization and allocation Process



Source: Authors

207. The Resource Mobilization (RM) Unit at the MOFED is responsible for the mobilization of external financing, which can be in the form of loan, grants or technical assistance, from multi-lateral agencies and bilateral agreements. Currently, this unit is inadequately manned, with only three full-time, given the workload. The capacity of the RM Unit needs be enhanced, given that the criteria and conditions of different multi-lateral entities are different, cumbersome and demanding. Job descriptions for the members of the RM unit should be reviewed, to assess the requirement for extra manpower.

208. Some international entities launch calls for proposals, which must be submitted within a relatively limited time period. The availability of a list of priority and pipeline projects which have already been validated by a high-level body (as outlined above), will facilitate a rapid identification of projects that will meet the criteria of the donor, taking into account the needs and priorities of the country.

209. Currently, donor-funded environment project proposals - such as the Adaptation Fund (AF), Global Environment Facility (GEF) and Green Climate Fund (GCF)) are drafted with the assistance of multi-lateral entities such as UNDP and UNEP, as they are rather complex in nature. Once the project proposal is approved, these entities also charge an administrative fee, which is borne by the donor and amounts to about 8 to12% of the project grant value. However, most multi-lateral donors (such as AF and GCF) are now encouraging countries to have national accredited entities which would be responsible for preparing project proposals and which could request funding from the donor without the need to go through multi-lateral entities.

210. Funding institutions such as AF have also started putting restrictions in the grant amount which a country could tap through multi-lateral entities in order to encourage countries to seek accreditation. Such mechanism enables the country to build in-house capacity for project development and at the same time acquire the 8-12% administration fee for their own use. Currently, there is an on-going initiative by the RM Unit to seek assistance from GCF for at least two institutions in the country to obtain accreditation. The process includes a full assessment of the organization, its budgetary allocation process and fiduciary system, and all the government procedures for procurement, financial management and internal control.

211. Thus in future, if the country intends to maximize donor-funding, it needs to build in-house capacity to develop projects or at least be able to easily recruit consultants to assist line ministries in developing projects within specified timeframe of each donor. A full-fledge project preparation unit, which could be the RM Unit with adequate support and resources, will be able to help nationally accredited entities to prepare project proposals according to donor criteria. It is important to recruit qualified experts or officers who are experienced in fields such as modelling, environmental and social screening, and gender sensitivity.

212. As international comparison, a country like at the ministry of finance a dedicate External Finance Unit (EFU) in charge of resource mobilization. This unit is manned with at least 20 staffs. Each staff holds a 2 to 3 donor's desk and he/she is in charge of following all the activities of this donor. In addition, the specialization of the staff on a limited number of donor allow them to know

better the resource mobilization of this donor and can answer quickly to any call for fund for this donors. Similar organization is also seen is Kenya and Uganda.

Recommendation 9:

Strengthen the capacity of the Resource Mobilization (RM) Unit at the Ministry of Finance and Economic Development (MOFED) with adequate resources and support

Strengthen the capacity of the RM Unit at MoFED, given that the criteria and conditions of various multi-lateral entities are different, cumbersome and demanding. The job descriptions for the members of the RM unit should be reviewed, to assess the requirement for extra manpower. The availability of a list of priority and pipeline projects, already validated by a high-level body, will facilitate project identification to respond to call for proposals by donor agencies, often setting short deadlines. Adequate resources and support should be provided to set up a full-fledge project preparation unit, help nationally accredited entities to prepare project proposals according to donor criteria

6.0. Conclusions and recommendations

213. The purpose of this study was make an assessment of the public environmental expenditures in Mauritius and assess the capacities within government for a transition into a green economy. It was proposed that there was a necessity to strengthen the planning and budgeting capacity of the national stakeholders.

214. This PEER review was set within the context of national policy and institutional arrangements to respond to environmental impacts in Mauritius. It gave consideration of an assessment of current priorities and strategies relative to the environment, institutional arrangements for integrating environmental priorities and environmental objectives into the budgeting and expenditure management process.

215. It began with a scoping exercise to identify programs of interest within the government budget then assessed the amount of expenditures that could be assumed as environmentally related. 26 programmmes were shortlisted and further information were sought through meetings with government officers from relevant ministries and departments, and available reports and studies.

216. Since there is no common definition of environmental expenditure, one had to be developed in the national context of Mauritius, which includes those expenditures that have both a direct and indirect impact on the natural and built up environment. This definition includes expenditure related to environmental management, and the protection and control of human activities that may affect the environment.

217. The computed environmental expenditures were then assessed for their relevance to climate resilience for adaptation and to mitigation of climate change. There was limitation to the amount of data and information acquired and the focus was limited to environment and climate change. As well, not all programs had the same relevance to the environment and climate change and allowances had to be taken into consideration.

218. The Team feels that enough data and information was acquired to provide a solid baseline PEER has been developed for Mauritius that can be built upon with future and more elaborate studies. The PEER report provides much leverage to the country vis-à-vis international donors during project financing negotiations, as it has been noted that more co-financing from countries attracted proportionally more grants.

219. The overall analysis and finding provide an overview of environmental spending within their current budget framework and identifies for the government areas of improvement and capacity required to begin a transition towards and more sustainable green environmental economic focus. The following recommendations are provided in order for the next steps to be taken.

Based on the findings of the study, the team made these ten recommendations.

Institutional set-up:

Recommendation 1: Revive the National Environment Commission (NEC) to create better synergy among the various stakeholders to address important environmental concerns and issues and to ensure high-level engagement and provide policy guidance.

To set up a technical committee to serve as a secretariat to the NEC and that will be located at the MoESDDBM. To improve coordination, it is proposed that all ministries likely to have a substantial relevant work load be equipped with an environment / climate change desk, with whom the secretariat of the NEC would be regularly liaising.

Recommendation 2: Accelerate the procurement process by further disseminating it across line ministries and departments and ensure that adequate training is provided to build officer capacity and develop more efficiency

A Procurement Act is in action and uniform across ministries. However, slow execution of projects is often attributed to the lack of knowledge of the procurement process, which is usually carried out by the Departmental Bid Committee of the concerned ministry. This unit may not have the same priorities as the project / operations team, and the lack of technical skills in new technology areas can be a barrier. For ministries that have a substantial load of procurement, the provision of more resources, as well as capacity building for existing officers is recommended. An additional senior person / high-level officer in the finance department is proposed, in case a dedicated chairperson for the procurement committee is justified, in order to ensure timely follow up. More training is required across the board, so that committee members have a clear understanding of the terms of reference and how procurement procedures can be carried out in an efficient and timely manner.

Recommendation 3: Create mechanisms and procedures within the Climate Change Division to efficiently communicate and disseminate pertinent information to sensitize and create awareness across all economic sectors.

Dissemination of information and communication on environment and climate change play a very important role in creating awareness and sensitization, as well as making available pertinent information to a number of economic sectors (e.g. agriculture, construction, tourism, health, energy sector, etc.) for proper action upfront.

Various ministries have different roles and the CCD should be provided with adequate resources to enable communication and coordination with the other sectors for coherent messages to the population at large. The Climate Change Information Centre (CCIC) and the CCD website needs to be upgraded, with graphics and user-friendly features, to improve the quality of the communication.

More collaboration is recommended between CCD and other ministries, so that public officers can be trained and empowered to mainstream climate change in their respective fields. CCD should have the resources and be organized to provide capacity building trainings, tailored to the needs of respective ministries, for appropriate planning, action and monitoring in climate relevant areas for each ministry

Efficiency and effectiveness

Recommendation 4: Strengthen the capacity of the staff in project management, especially the design of logical framework and the design of result chain.

The account General report on budget management show at the section DD the report of project implementation. However, the team notice that there is lack of knowledge of outcome and output indicators. It is then suggested that the capacity of the staff be strengthen in project management. This is allowing a better reporting on project design, implementation and reporting.

Recommendation 5:

Develop a process and the procedures to evaluate all projects through the "lens of Climate Change" taking into account short, medium and long-term projections, risks and benefits for the country.

Develop a project evaluation team and a monitoring and evaluation framework to ensure the monitoring, efficient implementation and evaluation of all environmental and climate change projects.

Project appraisal for climate compatibility. All major project investments should be screened and appraised with a 'climate lens', to ensure that that a fair consideration has been given for climate proofing, taking into consideration short, medium and long term climate change projections for the country. Increase in initial costs should be evaluated using the life-cycle approach, taking into consideration higher risks related to climate change in future.

In this context, the Ministry of Public Infrastructure and Transport should study the possibility of amending the Project Request Forms that would address climate change related issues, as well as the impacts of projects on climate change, with the support from the Ministry of Environment in the drafting of the appropriate text.

Recommendation 6: Promote decentralization of programs and projects to local levels so that they too can deliver climate change benefits

The decentralization of measures at the level of local authorities will contribute to enhance resilience to climate change adaptation, as a function of the exigencies of their respective locations. It is noted that guidelines for mainstreaming climate change have already been developed as regards building and land use permits issued by local authorities.

NDRRMC is already taking the lead to decentralize the management of disaster risk reduction, as mentioned earlier. Local government officials need to become more sensitive and aware of the need to mainstream climate change in their respective strategies and development plans.

Recommendation 7: Create a framework that allows the identification of climate adaptation and mitigation projects that clearly defines the expected outcomes (economic, social, capacity building, environmental, etc.).

More precise labelling of Programs / Projects / Activities. In order to readily identify environmentally related programs / projects / activities, and their relevance to climate adaptation and mitigation, it is recommended to have a clearer description of programs for such expenditures in general, and more specifically in ministries such as Health / Public Infrastructure / Land Transport / Education / Social Integration. All projects should have a project brief that is available on line, and that clearly spells out expected economic, social and environmental outcomes. Capacity building of relevant public officers will be needed, so that they can implement this task, which will also be associated with the implementation of the climate coding. NDRRMC is already taking the lead to decentralize the management of disaster risk reduction, as mentioned earlier. Local government officials need to become more sensitive and aware of the need to mainstream climate change in their respective strategies and development plans.

Establish a monitoring and evaluation mechanism as well as a tracking system

Recommendation 8: Established a M&E system at the ministry of Environment

A dedicated focal person should be designated to be the M&E expert at the Ministry of Environment to continuously maintain and update the M&E system and the Public Environmental Expenditure (PEE) database.

Resource Mobilization

Recommendation 9: Strengthen the capacity of the Resource Mobilization (RM) Unit at the Ministry of Finance and Economic Development (MOFED) with adequate resources and support

Strengthen the capacity of the RM Unit at MoFED, given that the criteria and conditions of various multi-lateral entities are different, cumbersome and demanding. The job descriptions for the members of the RM unit should be reviewed, to assess the requirement for extra manpower. The availability of a list of priority and pipeline projects, already validated by a high-level body, will facilitate project identification to respond to call for proposals by donor agencies, often setting short deadlines. Adequate resources and support should be provided to set up a full-fledge project preparation unit, help nationally accredited entities to prepare project proposals according to donor criteria

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Annex 1: TERMS OF REFERENCES

Empowered lives.
Resilient nations.

DETAILED TERMS OF REFERENCE
for
Consultancy for (1) Team Leader/Expert in Public Finance Management and Public Expenditure Review and (2) Expert in Environment, Climate Change and Sustainable Development for "Public Environment Expenditure Review" Project

1. Project Summary Table

PROJECT TITLE	Public Environment Expenditure Review
COUNTRY	Mauritius
REGION	Africa
FOCAL AREAS	i. Public finance ii. Environment, climate change and sustainable development
DUTY STATION	Home-based and Mauritius
TITLE	One Team Leader/Expert in Public Finance Management and Public Expenditure Review (Team leader) and one expert in Environment, Climate Change and Sustainable Development
EXPECTED DURATION OF ASSIGNMENT	25 working days including a total of 15 days fielded mission

2. Background

Mauritius has been promoting sustainable development as a way to address its unique vulnerabilities and opportunities as a SIDS. One of the major opportunities for action to make possible the transition of Mauritius to a green economy is buildup resilience and the increase in adaptive capacity of the country.

The UNEP-supported Green Economy Assessment Report for Mauritius using a quantitative simulation model suggests that green economy investments of around 0.9% GDP per year between 2014 and 2035 are projected to result in general annual savings in the range of 3% of GDP by avoiding future costs such as the landfilling of waste and fossil fuel imports. Under the green economy investment scenario, GDP is projected to be about 6% higher relative to the Business As Usual scenario, by 2035, enabling the use of available resources to create a more resilient and equitable economy. An ILO-supported input-output modelling of green jobs assessment also suggests that economy-wide changes towards greener growth will have large net employment effects in Mauritius.

As one of the specific areas of interest and capacity-building needs for technical and financial support from PAGE in 2014 and 2015, it is proposed to strengthen the planning and budgeting capacities of national stakeholders through a public environmental expenditure and institutional review, with a view to assess expenditure levels and strengthen the efficiency, effectiveness, and sustainability of public expenditure and institutional mechanisms on environmental management, of the following two programs of the Government of Mauritius Budget:

1. Environmental Conservation and Protection
2. Sustainable Development and Climate Change

Ministry of Finance and Economic Development (MOFED) will lead this exercise.
A number of relevant ministries, and the Rodrigues Regional Assembly will be involved in the exercise, through a focal point designated by the respective ministry.

3. Objective and Scope

Objective

The objectives of this Public Expenditure Environment Review are as follows:

(i) **Evaluate public expenditure in environmental management** as the current fragmentation of funding and public institutions makes it difficult to provide a consolidated view.

(ii) **Examine the processes whereby policy is developed** (as sustainable development and climate change mitigation and adaptation are cross-cutting. This will provide an insight into the likely take-up of policy decisions and subsequent funding allocations, as well as give an insight into institutional capacity and coordination mechanisms

(iii) Analyse the effectiveness of expenditure allocation, disbursement and execution

(iv) **Develop a climate budget code** so that expenditure on climate change mitigation and adaptation can be tracked;

(v) **Assess the outputs delivered and outcomes achieved through public expenditure on environment**. Comparison of public expenditures of Mauritius environment with those of other countries, with similar level of development, and facing similar environmental challenges, will provide benchmarks to assess the efficiency of environmental finance in Mauritius.

(vi) **Provide concrete recommendations** to strengthen the efficiency and effectiveness of public expenditure and institutional mechanisms for environmental management

(vii) **Identify resources** and strengthen capacity to effectively tap into international funds which are being made available to address environmental issues

The review period for the public environment expenditure will be from 2011 to 2014. It will include expenditure under 'Environmental Protection and Conservation', and 'Sustainable Development and Climate Change'. Even though both these programmes appear only in expenditure of the Ministry of Environment, Sustainable Development, Disaster and Beach Management, a number of other ministries are involved in implementing projects and undertaking a number of activities that aim to protect the environment and achieve sustainable development.

4. Methodology and Approach

The analysis will draw on Public Environment Expenditure and Review (PEER) based on the Climate Public Expenditure and Institutional Review (CPEIR)[10] methodology designed by UNDP and Overseas Development Institute (ODI), but with adaptations in light of past and current environmental finance advancements in Mauritius.

The methodology will review how environment related expenditures are integrated into national medium term expenditure framework (MTEF) and sector budgetary processes. This analysis has to be set within the context of the national policy and institutional arrangements that exist to manage the response to environmental impacts in the Republic of Mauritius. Hence, the analysis needs to take account three key spheres of policy development, institutional structures and financial management:

1. An **assessment of current policy priorities and strategies** as these relate to environment;
2. A **review of institutional arrangements** for promoting the integration of environmental priorities into budgeting and expenditure management;
3. A **review of the integration of environmental objectives within the budgeting process**, including the part of budget planning, implementation, expenditure management and financing.

The consultancy assignment will also address the following issues:

Review the institutional arrangements and coordination mechanisms for environmental finance, budgeting and planning: The consultancy team will examine the current institutional arrangements to identify where improvements could be made including extent to which these arrangements are coherent with national development and inclusive green economic growth strategies and policies. This will also lead to recommendations to improve the coordination of international flow of incoming climate finance for better integration and prioritization as well as donor coordination on actions related to the environment in Mauritius.

Planning and budgeting for environment-related actions: The consultancy team will review actions related to the environment, targets and performance indicators proposed in PBB and sectorial and national plans to obtain a clear picture of what has been planned and implemented. This will enable key Ministries and MOFED to estimate financial resources that are required to implement actions related to the environment and how much budgetary resources should be allocated to finance environmental expenditures and investments. This will also identify whether more detailed costing exercises are needed within and/or across sector and across-cutting policy priorities and targets.

Budgetary allocation and tracking actual expenditure: The consultancy team will review the financial management systems for allocating and spending environment-related expenditures with an aim to attempt to understand a trends analysis on both budgeted and actual expenditure.

Define environment-related expenditures: The absence of a definition on environment-related expenditure constrains stakeholders in tracking resources allocated for financing associated actions. Building on from support provided by UN Statistics Division, the consultancy team will propose an inclusive methodology and coding system to define and track environment-related expenditure that is appropriate in the Mauritian context.

[10] Bird et al, 2012. The Climate Public Expenditure and Institutional Review (CPEIR): A Methodology to Review Climate Policy, Institutions and Expenditure. A joint UNDP/ODI working paper. http://www.cbd.int/financial/climatechange/g-cpeirmethodology-undp.pdf

Establish a monitoring and evaluation mechanism as well as a tracking system: The consultancy team will review the budget and environment frameworks with a view to recommend associated finance related indicators for inclusion.

5. Institutional arrangements

The consultancy team will be composed of two experts: one Team Leader/Expert in Public Finance Management and Public Expenditure Review and one Expert in Environment, Climate Change and Sustainable Development.

The consultancy team will receive strong and continuous support from the Ministry of Finance and Economic Development, which will fully brief the consultants on budget information available in Mauritius.

A national team of analysts from the Ministry of Finance and Economic Development (particularly of the Sector Ministry Support Team on Environment) and officers from line ministries will participate in the public expenditure review exercise, thus enabling build national capacity in this area.

A briefing session will be held with MOFED, Ministry of Environment, Sustainable Development, Disaster and Beach Management and the United Nations Resident Coordinator's Office (UNRCO) at the start of the assignment.

A Steering Committee, chaired by MOFED, and comprising UNRCO and representatives from line ministries and other relevant stakeholders will be set up to guide and oversee the review.

6. Team Composition

The team will be composed from 2 consultants- the Team Leader/ Expert in Public Finance Management and Public Expenditure Review and the Expert in Environment, Climate Change and Sustainable Development. The work of the team of consultants will be guided by the Norms and Standards established by the United Nations Evaluation Group. Team members will be requested to sign the Code of Conduct prior to engaging in the review exercise.

• The overall responsibility of the Team Leader / Expert in Public Finance Management and Public Expenditure Review will be to produce inception, draft and final reports. S/he will lead and coordinate the work of the Public Environment Expenditure Review team and be responsible for the quality assurance of all deliverables. The Team Leader should have a good knowledge and experience in one or more of the UNDP thematic areas especially Public Finance. The Team Leader will provide guidance, technical support and oversight to the team members throughout the period, especially in ensuring agreed upon methodologies, and writing of assigned sections of the report before the deadline.

The Expert in Environment, Climate Change and Sustainable Development will provide support to the Team Leader and provide expertise in specific subject areas related to environment, climate change and sustainable development. S/he will take part in the data collection and analysis work. S/he will be responsible for drafting key parts of the Inception report and of final Public Environment Expenditure Review.
The Team Leader in Public Finance Management and Public Expenditure Review and Expert in Environment, Climate Change and Sustainable Development will report to the Steering Committee set up by MOFED.

During the part of the assignment that is to be spent in Mauritius the team will be based at the Ministry of Finance and Economic Development.

7. Deliverables

During the Assignment, the consultants will deliver:

- Inception report after five (5) days;
- Work sessions/workshops related to the assignment, and make presentations on the methodology, findings and recommendations;
- Guidance Notes (short format - 3 to 5 pages each) to inform MTEF sector working groups on planning, budgeting and tracking national environmental priorities in MTEF process;
- Draft Report; and,
- Final Report, including an Executive Summary at the end of the assignment, in which the comments received on the draft report are incorporated;

The Final Report should include the following (indicative table of contents):

1. Title
2. Table of contents
3. Acronyms and abbreviations

4. Executive summary: A part from a comprehensive consultancy report will constitute the major output of the consultancy; the Consultant is requested to produce a clear and well written two to three-page summary bringing out the main findings and recommendations from the report. This will guide the presentation for stakeholders' workshop to validate the findings of the report;
5. Introduction and background
6. Defining the scope of the assignment
7. Methodology and Data acquired.
8. Macro-economic context and public financial management in Mauritius
9. Policy analysis
10. Institutional analysis
11. Expenditure Review
12. Conclusion and Recommendations
13. Annexes

The main report should not be more than 40 pages, excluding annexes.

7. Competencies

Corporate Competencies (both experts):

- Demonstrates integrity by modelling the UNs values and ethical standards;
- Advocates and promotes the vision, mission, and strategic goals of UN;
- Displays cultural, gender, religion, race, nationality and age sensitivity and adaptability;
- Treats all people fairly without favouritism.

Functional Competencies for Team Leader/Expert in Public Finance Management and Public Expenditure Review):

- Proven understanding in budgetary and public expenditure review processes and proven record in informing and influencing such processes;
- Proven understanding of ongoing processes such as national development strategies, public budgeting processes
- Excellent writing and good analyzing aptitude. Proven experience in writing of analytical reports.
- Ability to work independently and respond to feedback in a timely and professional manner.
- Good organizational skills, attention to detail, and ability to work in multi-cultural environment.

Functional Competencies (Expert in Environment, climate change and Sustainable Development)

- Excellent understanding and knowledge of environment conservation and protection, sustainable development and climate change.
- Excellent writing and good analyzing aptitude. Proven experience in writing of analytical reports.
- Ability to work independently and respond to feedback in a timely and professional manner.
- Good organizational skills, attention to detail, and ability to work in multi-cultural environment

8. Required qualifications of the consultancy team

1. **Required qualifications for the Team Leader/Expert in Public Finance Management and Public Expenditure Review:**

Education

1. At least a Master's degree in Economics, Public Finance, or a related field from a recognised university.

Experience

2. At least 15 years of relevant experience in public financial management, economics or a related field
3. Demonstrated experience in Public Expenditure Reviews
4. Proven understanding of ongoing processes such as national development strategies, public budgeting process
5. Experience in supporting and analyzing institutional and public sector reform process
6. Experience in environmental analysis and programming an advantage
7. Previous work experience in Mauritius will be an asset.

Language

8. Excellent written and spoken English is required. Knowledge of French will be an added advantage.

Required qualifications and competencies for the Expert in Environment, Climate Change and Sustainable Development:

Education

1. At least a Master's degree in Environmental Science or in related field from a recognised university.

Experience

2. At least 10 years' experience in one or more of the following areas: climate change, climate change finance, environment, green economy finance
3. Demonstrated expertise in the gender and social dimensions of environmental problems
4. Excellent knowledge of environment-related international and national frameworks
5. Experience in conducting evaluations and climate change expenditure reviews
6. Demonstrated experience and abilities to pro-actively lead and coordinate a team, including strong interpersonal skills with ability to multi-task and maintain effective work relationships with diverse range of institutional partners and undertake complex assignments.
7. Previous work experience in Mauritius will be an asset.

Language

8. Excellent written and spoken English is required. Knowledge of French will be an added advantage.

Duration of contract

This assignment is for a duration of 25 working days, starting from 8 September 2015 to no later than 11 December 2015. The Team Leader and the Expert in Environment will spend 15 field days in Mauritius for consultations with stakeholders and presentation of findings.

Scope of Price Proposal and Schedule of Payments

Price Proposal

- The financial offer should be quoted as a lump sum amount, 'all-inclusive '. The term "All inclusive" implies that all costs (professional fees, travel costs, living allowances, communications, consumables, etc.) that could possibly be incurred by the Contractor are already factored into the final amounts submitted in the proposal
- The contract price is fixed regardless of changes in the cost components. Payments will be effected based on deliverables

Payment Schedule

- 20% payable upon submission of proposed work plan and Inception Report 21 September 2015
- 30% upon submission of First Draft Public Expenditure Review Report (11 November 2015)
- 50% upon satisfactory completion of assignment and endorsement of the review by the steering committee no later than 7 December 2015

Proposed Work Plan and Indicative Timeline

It is planned that the consultancy starts on 8 September 2015, and shall expire on the satisfactory completion of the services of the services described above by 11 December 2015.
The following schedule of activities is only illustrative, and a final timeline will need to be refined and presented by the Team Leader to the Steering Committee:

TIMELINE	ACTIVITY
8 September 2015 – 21 September 2015	Contract Signature and Desk Review
21September 2015	Submission of Inception report
15 September 2015-7 October 2015	In country mission (15 working days, including presentation of findings)

22 September 2015-7 October September 2015	1-dayWorkshop for presentation of findings
12 October 2015	Submission of guidance notes to MTEF
11 November 2015	Submission of Draft report
12 November 2015 – 20 November 2015	Comments from stakeholders
25 November 2015	Final Submission of Report

Recommended Presentation of Offer

Applicants are requested to apply online http://jobs.undp.org. Individual consultants are invited to submit applications & below requirements.
1. Duly accomplished **Letter of Confirmation of Interest and Availability** using the template provided by UNDP;
2. **Personal CV and P11 (both)**, indicating all past experience from similar projects, as well as the contact details (email and telephone number) of the Candidate and at least three (3) professional references. C**andidates not submitting P11 will not be considered.**
3. **Brief description** of why the individual considers him/herself as the most suitable for the assignment, and a methodology, **if applicable**, on how they will approach and complete the assignment;
4. **Financial Proposal** that indicates the all-inclusive fixed total contract price, supported by a breakdown of costs, as per template provided. If an Offeror is employed by an organization/company/institution, and he/she expects his/her employer to charge a management fee in the process of releasing him/her to UNDP under Reimbursable Loan Agreement (RLA), the Offeror must indicate at this point, and ensure that all such costs are duly incorporated in the financial proposal submitted to UNDP.

Criteria for selection of best offer:
The award of the contract will be made to the Individual Consultant whose offer has been evaluated using the "Combined Scoring Method" and determined as:
- Responsive/compliant/acceptable;
- Having received the highest score out of a pre-determined set of weighted technical and financial criteria specified below (Technical Criteria weight (0.7), Financial Criteria weight (0.3).

Only candidates obtaining a minimum of 70 marks out of 100 would be considered for the Financial Evaluation.
Mauritian nationals are strongly encouraged to apply. Qualified women are strongly encouraged to apply.

(For Team Leader/Expert in Public Finance Management and Public Expenditure Review)

Educational Qualifications Higher Degree in Economics, Public Finance or related fields	**Content Knowledge** Must have at least 15 years' experience in Public Finance Management	**Evaluation Experience** Must have prior evaluation experience with UN or similar agencies	**Background** Public finance background is preferred with demonstrated ability to work in a diverse environment	**Report writing Skills** Report writing skills	**Proficiency in English.** Fluency in English is required. French would be an advantage	Total
15 MARKS	30 MARKS	25 MARKS	20 MARKS	5 MARKS	5 MARKS	100 MARKS

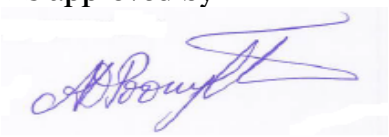
(For expert in environment, sustainable development and climate change)

Educational	**Content**	**Evaluation**	**Background**	**Report**	**Proficiency**	Total

Qualifications Higher Degree in Environment, or related fields	**Knowledge** Must have at least 10 years' experience in environment, sustainable development and climate change	**Experience** Must have prior evaluation experience with UN or similar agencies	Environmental background is preferred with demonstrated ability to work in a diverse environment	**writing Skills** Report writing skills	**in English.** Fluency in English is required. French would be an advantage	
15 MARKS	30 MARKS	25 MARKS	20 MARKS	5 MARKS	5 MARKS	100 MARKS

DEADLINE FOR APPLICATION IS 30 August 2015.

This TOR is approved by

Signature 

Name and Designation: Switch Africa Green National Coordinator

Date of Signing : 24 August 2015

Annex 2:: Public environmental expenditure review (PEER) Guidelines

This brief description of the Public Environmental Expenditure Review (PEER) guidelines is based on the "Profiles of Tools and Tactics for Environmental Mainstreaming No 12, published by the International Institute for Environment and Development (IIED).

Objectives: A wide range is possible, and includes environmental effectiveness, fiscal prudence in environmental spending and revenue raising, and management efficiency to optimize investments in the right programs. It is recommended to customize the PEER to meet the needs of the country.

Issues: The study may include one or more of following key environmental expenditure issues:

1. Definition of environmental expenditure
2. Levels and trends in environmental expenditure, possibly as a % of government expenditure or GDP. World Bank recommends environmental expenditures between 1.4 to 2.5% of GDP for developing countries.
3. Disaggregate expenditures by functions
4. Review environmental expenditures against development objectives / environmental priorities
5. Review efficiency and effectiveness of environmental expenditures.
6. Budget execution. Review expenditure controls, procurement processes & budget variances
7. Fiscal decentralization. Consider resource distribution, and source of financing (local and national).
8. Sustainability of the environmental budget. What are the resource gaps and potential sources of revenue
9. Types of expenditures. Can assess ratio of current to capital expenditure.
10. Links between particular funding sources and environmental expenditures.

Implementation: The main implementation steps are typically as follows:

1. Define purpose and scope of PEER
2. Survey of available data
3. Review environmental expenditure of ministries to set up a database, which can be a very time consuming process.
4. Understand how and where the expenditures are made
5. Identify the sources of environmental funds
6. Review actual expenditures against policy priorities, including trends over time, or international comparisons, may be included.
7. Enquire into relevance, efficiency and effectiveness of expenditures, preferably in achieving desired outcomes.
8. Recommendations for better achievement of priorities.

A PEER document provides can help to influence budgetary and revenue-raising decisions. An average of US$200,000 in 2003 is cited as a cost estimate for a full PEER review.

Annex 3: The Climate Public Expenditure and Institutional Review (CPEIR) Guidelines

This brief description of the Climate Public Expenditure and Institutional Review (CPEIR) is based on the "The Climate Public Expenditure and Institutional Review (CPEIR): a methodology to review climate policy, institutions and expenditure", a joint UNDP / ODI paper published in 2012.

The three key themes of the CPEIR are policy development, institutional structures and public financial management, and they need to be investigated in a holistic manner.

Objectives of CPEIR include:

- a better understanding of climate change policy and its linkages to expenditure
- improved understanding of the role and responsibilities of relevant institutions
- climate change related expenditures in the national budget, and through other funding channels, providing a baseline for future analysis

The CPEIR approach is quite similar to the PEER, because of the cross sectorial nature environmental concerns.

Defining Climate Finance

According to OECD, the definitions are as follows:

(i) an activity should be classified as climate change mitigation related if it contributes to the objectives of stabilization of greenhouse gas (GHG) concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system by promoting efforts to reduce or limit GHG emissions or to enhance GHG sequestration (OECD, 2011).

(ii) An activity should be classified as adaptation-related if it intends to reduce the vulnerability of human or natural systems to the impacts of climate change and climate-related risks, by maintaining or increasing adaptive capacity and resilience (OECD, 2011).

Implementation of the CPEIR may last over several months, and key steps include the analysis of climate change policy, institutions and expenditures in the government budget.

Climate Change Relevance: Identified activities are further assessed, with an estimate of the proportion of expenditure considered relevant to climate change on a scale of 0 – 100%. All activities are then grouped into the four categories, namely high, medium, low and marginal, according to the rationale provided for each category.

Implementation. The main steps are as follows:

1. Climate change policy analysis - the issues that relate to the overall policy environment for climate change expenditure are addressed, through interviews with key officials.
2. Institutional analysis - provides important context for the level of public expenditure on climate change related actions
3. Expenditure analysis. Need to select activities / projects / programs for analysis. Define the body of 'total expenditure' for analysis in terms of climate relevance. Review what data is available, and decide which expenditures to be analyzed and their level of relevance.
4. Undertake secondary analysis on a number of issues such as nature of inputs purchased, purpose of expenditure, and level of support to adaptation or mitigation activities.

The CPEIR will help to identify actions to facilitate and strengthen the national response to climate change.

Annex 4: Climate Relevancy level

Department/ Program	CC Adaptn / Mitigatn	Level of Relevance of expendt	Rationale & explanations for level of resilience
Department of Environment **MID Fund**	**A (90 %)** **M (10 %)** **A (90 %)** **M (10 %)**	**H** **H** **H**	All programmes are clearly related to the environment. Proportion of the total expenditures of MoESDDBM for Adaptation or Mitigation are largely based on inputs and assessment from the Ministry, taking into account human and financial resources allocated. Expenditures under several other divisions such as ICZM, EIA, SD also fulfil the objectives of improving resilience to / mitigating climate change. The expenditures identified as related to climate change have clear objectives and hence the high relevance level. Identified expenditures of MID Fund relate 100% to the environment, and are captured under Prog 401. Projects financed are mainly in the field of renewables and water harvesting. Accordingly, relevance is high for both categories. The % breakdown is based on description of project expenditures reported
Solid Waste Division **Beach Authority**	**M (75%)** **A (25%)**	**Med** **Low**	All expenditures are related to the environment. Major expenditure items are related to Mare Chicose landfill and the operation of transfer stations. The activities contribute mainly to climate mitigation, with benefits towards adaption through the protection of water resources and public health. Relevance is assessed as Medium, and could be increased to high as a function of evolving objectives. All expenditures for beach management are related to the environment, for cleaning and maintenance of the natural resources constituted by the beaches. Relevance for adaptation considered as Low, as activities indirectly contribute to improved resilience to the severe coastal erosion. Allocation of expenditures, based on respective share of Prog 463, is estimated to be 75% relevant to Mitigation and 25% for adaptation.
National Disaster Risk Reduction Management Centre (NDRRMC)	**A**	**H**	Projects / Activities contribute to reduce vulnerability, and are thus highly relevant to climate adaptation. Expenditures related to the environment and climate change activities o Disaster Risk Management were under the PMO for the period 2011-14. The high expenditures for land drainage (described below) under the NDU are clearly related to DRR and DRM.
Policy Strategy for Agro Industry & Food Security	**A**	**Med**	Programme expenditure related to policy and strategy of Agro-industry sector. Share of 50% of expenditures assumed, as the proportion of the expenditures of the 4 key programmes selected (excluding sugar sector) represent over 50 % of total expenditures of this Ministry. Relevance is Medium for adaptation, as for the other programmes.
Forest Resources	**A**	**Med**	Expenditures are 100% environment related. Protection of forests enhance climate resilience for adaptation to climate change. Primary objective for growing forests was not to capture GHGs (although this is an important co-benefit). Hence, relevance is Medium - may be increased to high because of increasing threat from climate change
Native Terrestrial Biodiversity &	**A**	**Med**	Expenditures are 100% environment related. Primary objective relates to native terrestrial biodiversity, and relevance is Medium - may be increased to high because of increasing threat to our bio-diversity

Conservation			from climate change.
Non –Sugar Crop Sector	**A**	**Med**	Expenditures are 100% environment related. Expenditures include Crop Research & Protection, Chemical Free Bio- Foods Promotion and food crop projects, for enhancement of food security. Hence the rating for Medium, likely to become high, in terms of relevance for CC adaptation.
Livestock Production & Development	**M**	**L**	Expenditures are 100% environment related. Activities promote livestock production, and indirectly to reduction in GHGs; resulting in a small contribution to climate mitigation – hence the low relevance. There is also some relevance to adaptation, as the activities will enhance food security.
Sugar Sector	**A**	**L**	This programme includes expenditures for field productivity and Irrigation Authority, which make an efficient use of water to promote agriculture. An estimated 25% of this Programme is attributed as environmental expenditure. Although sugar activity is principally commercial, the large area of cane fields has benefits for climate change e.g. the absorption of GHGs have a mitigation effect. Level of relevance is deemed low because of indirect outcome.
Fisheries Policy & Strategy& Development & Management	**A**	**Med**	Relevance to environment is considered 100% for MOI projects, and 50% for Prog 487 & 751. . The ministry has national well defined policies for sustainable management/exploitation of the natural resources that are fisheries and ocean. The laboratories experiment on identification of marine species and coral reef farming. Identified expenditures relate mainly to adaptation. Relevance is considered as Medium, and is likely to increase to High in the future in view of growing threats from climate change on marine life and eco-systems.
Meteorological Services	**A**	**H**	Expenditures are 100% environment related. The services provided, in the field of climate data and weather forecast, contribute towards increasing climate resilience for adaptation, for agriculture and food security, and for DRR – all of high relevance.
National Development Unit (NDU)	**A**	**H**	Environmental related Expenditures reported by the NDU include both Prog 404 – Land Drainage and Prog 405 – Community Based Infrastructure & Embellishment. Expenditures for Land Drainage projects have increased considerably after the flash floods of 30 March 2013 and constitute the disaster risk reduction and management response (High Relevance). Only a minor part (about 2%) is share of projects related to embellishment, which has a low relevance to adaptation.
Rodrigues (RRA)	**A**	**H**	Expenditures relate to a range of programmes, mainly in the field of water, desalination, food crop and livestock, afforestation, marine protected area – all considered as high relevance to adaptation for Rodrigues, given the persisting water shortage. The computed amount of expenditures is based on the PSIP.
MID Commission	**A (50%)** **M (50%)**	**H** **H**	Expenditures are recurrent, for the staffing and operations of the MID Commission, and have a high relevance to Climate Change. Equal split between Adaptation and Mitigation has been assumed in the absence of quantified indicators.
Public Infrastructure Division			Expenditures that relate to climate proofing of roads, bridges and buildings have a relevance to climate change adaptation principally (low / marginal). However, insufficient quantitative and qualitative information did not permit a quantitative estimate.
Land Transport Division			Expenditures related to road decongestion projects have a relevance to climate change mitigation (low / marginal). However, insufficient quantitative and qualitative information did not permit a quantitative

			estimate
Policy & Management Unit, MEPU	A (20%) & M (5%) of Prog 441	**H** **H**	Some 20% of this Programme expenditure related to policy planning in the fields of renewable energy and energy efficiency (Mitigation), and 5 % to water and sanitation (Adaptation), based on estimates provided by Ministry's officials. Relevance is therefore high, for all the identified environment related expenditures because of the clear objectives.
Water Resources Unit	**A**	**H**	Expenditures are 100% environment related. Because of the growing threat of water stress due to climate change, the relevancy for this very critical resource for the population is increased from medium to high for adaptation.
Energy Efficiency Management Office	**M**	**H**	Expenditures are 100% environment related. Rating based on fact that expenditures include some Rs 20 m of FIT funds for electricity production from bio-gas from 2012-2014, Rs 16.8 m to IPPs in 2014; and GEF / SIDSDOCK funded projects to promote energy efficiency; and recurrent expenditures for EEMO as from 2013. EEMO has clear objectives to reduce GHGs.
Sanitation	**A**	**H**	Expenditures are 100% environment related. Main objective is to prevent pollution that can affect our aquifer and marine life. On this basis, a Medium relevance is justified – but increased to High due to increasing water stress situation expected because of climate change. There is some relevance to Mitigation too, arising from the potential for production of methane, a very potent GHG
Radiation Protection Authority (RPA)	**-**	-	Radiation protection programmes are considered relevant to the Environment, with a negligible / marginal contribution towards climate change,
Central Electricity Board (CEB)	**M**	**H**	Expenditures that relate to renewable energy and energy efficiency projects – represent only a minor proportion of CEB total outlays, as energy produced by CEB is from fossil fuels. .This info was not readily available from the CEB
Central water Authority (CWA)	**A** **A**	**Med** **Marg**	The primary objective of CWA is treatment and distribution of potable water. Expenditures related to water quality (treatment, laboratory) and pipeline replacement are assessed as marginally relevant to adaptation. However, capital expenditure related to a number of projects to fight drought (such as Mare Longue – Mare aux Vacoas project) are considered as Medium relevance.
Municipalitis & District Councils	**M**	**Low**	Environment related expenditures have been identified by each Municipality & District Council. In 2014, 87 % of these expenditures relate to waste management, while the share of drainage and cleaning /landscaping is 12%. Attributed Relevance is low as the activities provide an indirect contribution to climate change mitigation.

Source: Authors

Annex 5: Classification of government functions in Mauritius

	Broad sector	Specific sector
1	**General Public Services**	011 Office of the President 012 National Assembly 013 Prime Minister's Office 014 Printing 015 Meteorological Services 016 Civil Service and Administrative Reforms 017 Foreign Affairs 018 Local Administration 019 Information Technology and Communication
2	**Public Order and Safety**	021 Judiciary 022 Police Force 023 Fire Services 024 Prison Services
3	**Economic Affairs**	031 Energy 032 Public Infrastructure 033 Roads 034 Land Transport 035 Maritime Services 036 Tourism 037 Civil Aviation 038 Port 039 Airport 0310 Finance and Economic Development 0311 Agro Industry & Food Security 0312 Fisheries 0313 Labor
4	**Environmental Protection (previously: Maurice Ile Durable)**	041 Renewable Energy 042 Solid Waste Management 043 Waste Water Management 044 Environmental Protection
5	**Housing and Community Amenities**	051 Social Housing 052 Community Amenities 053 Water Supply
6	**Health**	Health
7	**Recreation and Culture**	071 Youth and Sports 072 Culture 073 Government Information Services
8	**Education**	Education
9	**Social Protection**	091 Social Security 092 Gender Equality, Child Development and Family Welfare 093 Social Integration and Economic Empowerment

Annex 6: Proposed classification and coding of functions of government based on the COFOG

01 - General public services
- 01.1-XX- Executive and legislative organs, financial and fiscal affairs, external affairs
- 01.2-XX- Foreign economic aid
- 01.3-XX- General services
- 01.4-XX- Basic research
- 01.5-XX- R&D General public services
- 01.6 -XX- General public services n.e.c.
- 01.7 -XX- Public debt transactions
- 01.8 -XX- Transfers of a general character between different levels of government

02 - Defense
- 2.1-XX- Military defense
- 2.2 -XX- Civil defense
- 2.3 -XX- Foreign military aid
- 2.4 -XX- R&D Defense
- 2.5 -XX- Defense n.e.c.

03 - Public order and safety
- 03.1-XX- Police services
- 03.2-XX- Fire-protection services
- 03.3-XX- Law courts
- 03.4-XX- Prisons
- 03.5-XX- R&D Public order and safety
- 03.6-XX- Public order and safety n.e.c.

04 - Economic affairs
- 4.1-XX- General economic, commercial and labor affairs
- 4.2-XX- Agriculture, forestry, fishing and hunting
- 4.3-XX- Fuel and energy
- 4.4-XX- Mining, manufacturing and construction
- 4.5 -XX- Transport
- 4.6 -XX- Communication
- 4.7 -XX- Other industries
- 4.8 -XX- R&D Economic affairs
- 4.9 -XX- Economic affairs n.e.c.

05 - Environmental protection
- 05.1-XX- Waste management
- 05.2-XX Waste water management
- 05.3-XX- Pollution abatement
- 05.4-XX- Protection of biodiversity and landscape
- 05.5-XX- R&D Environmental protection
- 05.6-XX- Environmental protection n.e.c.

06 - Housing and community amenities
- 6.1 -XX- Housing development
- 6.2-XX- Community development
- 6.3-XX- Water supply
- 6.4-XX- Street lighting
- 6.5 -XX- R&D Housing and community amenities
- 6.6 -XX- Housing and community amenities n.e.c.

07 - Health

07-1-XX- Medical products, appliances and equipment
07-2 -XX- Outpatient services
07-3 -XX- Hospital services
07-4 -XX- Public health services
07-5 -XX- R&D Health
07-6 -XX- Health n.e.c

08 - Recreation, culture and religion
08.1 -XX- Recreational and sporting services
08.2 -XX- Cultural services
08.3 -XX- Broadcasting and publishing services
08.4 -XX- Religious and other community services
08.5 -XX- R&D Recreation, culture and religion
08.6 -XX- Recreation, culture and religion n.e.c.

09 - Education
9.1 -XX- Pre-primary and primary education
9.2 -XX- Secondary education
9.3 -XX- Post-secondary non-tertiary education
9.4 -XX- Tertiary education
9.5 -XX- Education not definable by level
9.6 -XX- Subsidiary services to education
9.7 -XX- R&D Education
9.8 -XX- Education n.e.c.

10 - Social protection
10.1-XX- Sickness and disability
10.2 -XX- Old age
10.3 –XX Survivors
10.4 -XX- Family and children
10.5 -XX- Unemployment
10.6 -XX- Housing
10.7 -XX Social exclusion n.e.c.
10.8 -XX- R&D Social protection
10.9 –XX- Social protection n.e.c.

Annex 7: Environmental Management Functions of Government and Corresponding Government of Mauritius' Agency

	Environment protection (COFOG) and environment promotion	Description of function	Government of Mauritius' agencies mandated with the respective function
1	Waste management (COFOG 05.1)	Collection, treatment and disposal of waste.	Solid Waste Division, MOESDDBM
2	Waste water management (COFOG 05.2)	Sewage system operation and waste water treatment.	Wastewater Management Authority
3	Pollution abatement (COFOG 05.3)	Activities relating to ambient air and climate protection, soil and groundwater protection, noise and vibration abatement and protection against radiation.	MoESDDBM
4	Protection of biodiversity and landscape (COFOG 05.4)	Activities relating to the protection of fauna and flora species, the protection of habitats (including the management of natural parks and reserves) and the protection of landscapes for their aesthetic values.	Ministry of Agro-Industry
5	Research and development (COFOG 05.5)	Administration of applied research and experimental development on subjects related to environment protection; operation of government agencies engaged in applied research and experimental development on subjects related to environment protection; support in the form of grants and loans for applied research and experimental development on subjects related to environment protection undertaken by non-government bodies such as research institutes and universities.	Mauritius Research Institute, MoESDDBM
6	Environment protection affairs and services n.e.c. (COFOG 05.6)	Administration, management, regulation, supervision, operation and support of activities such as formulation, administration, coordination and monitoring of overall policies, plans, programs and budgets for the promotion of environmental protection; preparation and enforcement of legislation and standards for the provision of environmental protection services; production and dissemination of general information, technical documentation and statistics on environmental protection.	MoESDDBM
7	Environment promotion activities	Activities which promote sustainable use of natural resources and which prevent or mitigate the negative environmental externalities of non-environmental development projects that potentially deplete natural resources or generate pollution: Examples would include investments in renewable sources of energy, or in sustainable agricultural technologies.	MOESDDBM, MAIFS, MEHRTESR MEPU EEMO MARENA

Annex 8: Environment related budget measures (2011-2014)

Sector	2011	2012	2013	2014
Renewable Energy, Energy Efficiency & Greening	MID - clean renewable energy to promote energy sufficiency & efficiency.	Regulation for ethanol blending	Double the funds available for solar water heater scheme	Power purchase agreements on RE with private sector
	Energy audits in 7 more buildings	Electricity from small IPPs to 3 MW	Energy audit for large consumers	Liberalize the sale of electricity
	CEB purchase electricity through Feed in Tariff from small IPPs	Green certification of hotels	Differentiated excise duties on households appliances	Encourage MSDGs to sell surplus renewable electricity to CEB
	Solar Water Heater scheme reinstated		Install 10,000 smart elect. meters	Energy Efficiency Campaign
	Develop 3 eco-villages,		Time off use tariff for electricity	Efficient biomass energy scheme
	National policy, guidelines and a rating system for sustainable buildings and construction.		Increased capital allowance for green technology equipment	Explore the cultivation of Arundo Donax to replace coal
	Improve energy consumption patterns			
	setting up a Wind farm at Plaines des Roches & electricity from landfill gas			
	MIDF - reduce the carbon footprint of industry			
	Increase sustainable products & services			
Envt Protection & Pollution	Preserve the natural landscape	Turn waste into compost	Acquire compactor lorries	Incentive to re-export PET bottles
	MID- pollution prevention	Cleaning and embellishment programme	Cleaning of all classified roads	Embellish village councils
	MID- cleaner production & eco-efficiency		Improve living environment	increase in Environment Protection
	Plaines Wilhems Sewerage Project 3 major sewerage projects		Improve the removal frequency of bulky waste	Charge fees on smart phones
	Double the rate of excise duty to discourage use of PET bottles, plastic bags & cans		Use 25 % of recycled paper to meet Govt's needs	
	Promote the production of environmentally clean paper carry bags		Segregate paper waste for recycling	
	Increase MID levy on petroleum, LPG & Coal			
Disaster Risk Reduction	Meteo services will acquire Transmet Equipment & 2 new weather stations			National Disaster Risk Reduction and Mgt Centre
	MOI to focus on Tsunami alert			Early warning and emergency alert
				Set up Land Drainage Agency
				Landslide works at 2 locations
Water & Wastewater	Merging CWA, WMA, IA & WRU into one single Water Authority	Singapore Expertise for water and waste water sector		External assistance for merger of CWA, WMA and IA
	Improve water catchment & Reduce water losses	Rehabilitate waste water disposal systems, NHDC		Monitor water supply system and replacement of old pipes
	Protect underground water from pollution;	Rehabilitate water supply system, 15 housing estates		Complete Pailles Water Treatment Plant
	Expand irrigation capacity,	Replace of 145 km of water pipes		Extending Water Tank Scheme
	Effective & efficient wastewater management	Connect 5,000 houses to sewer system		Pursue sewer connections
	Replace CWA old and defective pipes			Connect households Guibies to sewer system

	Improve Pailles Treatment Plant			
	Water tank scheme			
	Bagatelle Dam			
	Water projects for RRA			
Miscellaneous	Promote healthy eating habits in schools & among the population		Reduce stationery in Ministries and paper docs in National Assembly	Introduce Sustainability Index on the Stock Exchange
			Promote on line transactions	
Transport	Modernization of transportation systems			Replace bus by semi-low floor buses
	Road decongestion			No VAT on semi-low floor buses
Agriculture & Land Use	Enforce local legislations & ensure bio-security	Increase in food security budget	Elaborate criteria for land conversion	Compost Subsidy Scheme
	2 hydroponics villages as pilot projects		Encourage land lease for cultivation	plant 200,000 trees over next 2 years
	Rs 105 m for Food Security project		Subsidize locally produced compost	Biking trail in Vallee d'Osterlog
	Land Productivity Enhancement Scheme		Upgrading of Vallee d'Osterlog	
Ocean Economy & Fishing	Legal framework for judicious use marine resources	Strategic partner for Albion Fisheries Research Centre	Off-Shore wind farms in Rodrigues	Ocean Economy & National Ocean Economy Task Force
	Amend Fisheries & Marine Resources Act 2007	Replenishing our lagoons project	2 more aquaculture pilot projects	New ocean studies faculty at UOM
	Implement the Land-Based Oceanic Industry	Create coral farm & reef sanctuaries	Increase replenishment of lagoons	
	Mauritius Oceanography Institute at Albion	Highvalue aquaculture for SMEs	Protect sea turtles in Rodrigues	
		VAT refund on equipment for fishermen		
		No customs duty on refrigerated vehicles		
		Courses on basic marine safety		
Coastal Zone		Address environmental degradation of coastal areas		Beach Re-Profiling Programme & rehabilitation of coral reefs

Annex 9: Total Government Environmental Expenditures by key Ministries and programs, 2011-14

	% Envt	2011 Budgeted	2011 Actual	2012 Budgeted	2012 Actual	2013 Budgt	2013 Actual	2014 Budgt	2014 Actual
Ministry of Environment and Sustainable Development, Disaster & Beach Mgt		**1,337**	**1,042**	**1,584**	**1,237**	**1,358**	**1,220**	**1,442**	**1,231**
Programme 401: Environmental Policy and Management	100	56.2	51.79	265.2	260.30	169.4	167.34	74.6	67.77
Programme 402: Environmental Protection and Conservation	100	240	106.84	280	156.79	179	148.52	234	137.55
Programme 403: Uplifting & Embellishment of Physical Environment	100	178	156.12	184	150.08	205	186.50	237	206.33
Programme 406: Sustainable Development	100	38	0.99	52	2.35	7	1.96	8	2.76
Programme 463: Solid Waste Management & Beach Management	100	825	726.18	803	666.99	797	715.95	889	816.82
Disaster Risk Reduction	100			8	3.1	5	4.7	8.4	7.1
Ministry of Agro- Industry & Food Security		**1,337**	**1,230**	**1,518**	**1,242**	**1,556**	**1,464**	**1,616**	**1,439**
Programme 481: Policy and Strategy for Agro-Industry and Food Security	50	88	74.77	98	67.05	98	94.21	93	84.89
Programme 482: Competitiveness of the Sugar Cane Sector	25	152	147.14	249	191.81	221	217.06	186	184.29
Programme 483: Development of Non Sugar (Crop) Sector	100	543	502.40	591	486.41	620	580.47	672	572.22
Programme 484: Livestock Production and Development	100	328	301.86	322	285.77	369	340.46	378	339.77
Programme 485: Forestry Resources	100	187	170.87	187	172.48	191	181.87	198	184.79
Programme 486: Native Terrestrial Biodiversity and Conservation	100	52	33.20	71	38.91	57	49.83	89	72.63
Ministry of Ocean Economy		**180**	**172**	**139**	**125**	**153**	**160**	**177**	**225**
Programme 487: Fisheries Development and Management	50	164	124.16	117.34	82.15	133.5	104.74	152.80	113.63

Programme 751: Policy and Strategy for Fisheries and Rodrigues	50	22.55	21	21.19	17	22.68	22	24.42	22
MOI & Sub Prog 20108: Ocean Affairs & Devlp	100	-	26	-	26	-	34	-	89
Prime Minister's Office		815	875	1,300	584	1,842	1,589	1,108	757
Programme 281: Meteorological Services	100	65	61.21	126	70.42	100	95.01	99	78.42
Programme 404: Community-Based Infrastructure, Amenities and Public Empowerment &									
Programme 405: Land Drainage	A/R	749	687	1174	383	1,742	1,385.	1009	465
MID Commission - Sub Prog 20107	A/R	-	-	-	-	-	3	-	6
Total Expenditure RRA	A/R	-	127	-	130	-	106	-	208
Ministry of Energy and Public Utilities		4,827	2,595	3,894	2,504	3,174	2,960	4,409	3,714
Programme 441: Utility Policy and Management	25	37	13.35	29	24.63	27	24.99	16	11.09
Programme 442: Energy Services /EEMO	A/R	2,295	1	1,174	21	154	31	176	48
Programme 443: Water Resources	100	1,023	854.73	1,325	921.53	1,772	1,715.21	2,977	2,589.96
Programme 444: Sanitation	100	1,462	1,460.85	1,355	1,301.45	1,208	920.99	1,218	702.49
Programme 445: Radiation Protection	100	9	8.74	11	7.73	12	10.19	21	11.07
Central Elctricity Board (CEB)	A/R	-	-	-	-	-	-	-	-
Central Water Authority (CWA)	A/R	-	257	-	227	-	258	-	351
Min Local Government - Local Authorities	A/R	-	502	-	538	-	698	-	726
Total Environmental Expenditure (TGEE)		8,494.	6,415.	8,435	6,229.	8,082.	8,092.	8,751.	8,092.
Total Government Expenditure (TGE)		93,442	87,816	101,552	89,102	107,284	102,924	113,712	106,693
% TGEE / TGE			7.3%		7.0%		7.9%		7.6%
Total GDP (Rs bn)			323		344		368		387
% TGEE / GDP			2.0%		1.8%		2.2%		2.1%

Source of data: Authors based on Accountant General Reports, 2011-2014, National Development Unit, Central Electricity Board (CEB), Central Water Authority (CWA), Min of Local Government and PSIP for Rodrigues,

Annex 10: Project Portfolio for Pillar 3

Project	Executing Agency	Implementation	Comments
GEF Removal of Barriers to Energy Efficiency	MEPU	2007-2014, incl. a three-year extension.	Completed. Moderately positive final evaluation
SIDSDOCK Removal of Barriers to Energy Efficiency	MEPU	2012-2013 (8 months)	Completed
GEF Sustainable Management of POPs	MESD	2007-2015, incl. a three year extension.	Completed. Positive final evaluation
AFB Climate Change Adaptation in the Coastal Zone of Mauritius	MESD	2012-2015, incl. extension by one year	Moderately positive MTE
GEF Protected Area Network Project	MAIFS	2011-2018 incl. a three year extension	A rather critical MTE
GEF National Biodiversity Strategy and Action Plan	MAIFS	2013-2016	Too small for external MTE
GEF Removal of Barriers to Solar PV Power Generation	MEPU	2011-2016, incl. extension by one year	Positive MTE
GEF Integrated Water Resource Management	MEPU	2013-2016, incl. extension by one year	Regional project
GEF Minamata Convention Enabling Activity	MESD	2015-2017	Launched in Aug 2015
GEF Western Indian Ocean Large Marine Ecosystem (Sapphire)	MOI	Proposal stage	Regional project
GCF Low Carbon Programme	MEPU	Proposal stage	
GEF Biodiversity Mainstreaming in CZM	MOI	Design stage	Design stage completed by Sept 2015
AFB Coral Restoration Project	**MESD**	**Proposal stage**	**Regional project**

Source: Mid-Term Review, **UNDP Mauritius Country Programme 2013-2016**

Annex 11: Environment and climate change projects / activities of key ministries

Ministry of Environment and Sustainable Development. The expenditures for the Ministry of Environment are under four programs, namely Prog 401 (Environmental Policy and Management), Prog 402 (Environmental Protection and Conservation), Prog 403 (Monitoring, Uplifting and Embellishment of the Environment), and Prog 406 (Sustainable Development and climate Change). The 12 Divisions carry out various functions under the EPA, including those of monitoring and enforcement (refer to section 3 above for details). Expenditures of the MIF Fund are accounted under Prog 401. Key projects implemented during the period 2011 -2014 under Prog 402 and 406 are listed below.

Key projects implemented by the MoESDDBM, 2011-14

SN	Sector	Projects/Activities
1.	Climate Change	• Projects under Africa Adaptation Programme • Regional Capacity-Building for Sustainable National Greenhouse Gas Inventory Management Systems in Eastern and Southern Africa • Capacity Development on Climate Change Measures in the Republic of Mauritius • Climate Change Charter for Local Authorities • Guideline for Mainstreaming Climate Change in Building and Land Use Permit • Nationally Appropriate Mitigation Actions (NAMAs) for Low Carbon Island Development Strategy for Mauritius • Development of a 2050 Pathways Calculator for Mauritius • Technology Needs Assessment (TNA) Project • Preparation of the Third National Communication under UN Framework Convention on Climate Change (UNFCCC) • Toolkit for Climate Change Vulnerability Assessment and Identification of Adaptation Options for local authorities.
2.	Coastal Protection	• Climate Change Adaptation Programme in the Coastal Zone of Mauritius • Coastal Protection Works
3.	Environmental Monitoring	• Setting up a network of fixed stations to monitor continuously the ambient air quality in different regions of the island. • Analysis/monitoring of metals in environmental through Inductively Coupled Plasma-Mass Spectrometer • Sustainable Management of Persistent Organic Pollutants in Mauritius • Projects under the Vienna Convention and Montreal Protocol on Substances that Deplete the Ozone Layer

Source: Authors

A high number of climate change projects – mostly in the field of adaptation – and a number of environment related projects were implemented, generally funded by international agencies. The

objective of the Africa Adaptation Programme, was to integrate and mainstream climate change adaptation into the institutional framework and into core development policy, strategies and plans of ROM.

The objective of the Climate Change Adaptation Programme in the Coastal Zone of Mauritius, funded by the Adaptation Fund Board (USD 9.1 m) is to increase the climate resilience of communities and livelihoods in coastal areas in Mauritius (all islands). Mitigation related projects include NAMA for a low carbon development strategy, and TNC for the GHG Inventory as well as the Third National Communications to the UNFCCC. The Climate Change Charter for Local Authorities contribute to sensitize local authorities about climate change, and their important role at the local level.

Disaster Risk Reduction and Management. The Disaster Risk Management function was previously carried out by the Central Cyclone and other National Disaster Committee, under the responsibility of the Commissioner of Police. It was restructured in October 2013, in the wake of the flash flood of March 2013 and a full-fledged unit was set up, under the responsibility of the Minister of Environment. A National Risk Reduction Management Centre Bill is due to be approved soon in the National Assembly, to give a legal mandate to the institutions being set up.

Local DRR Management Committees will be set up in the respective municipalities and District Councils, as a strategy for greater decentralization. A unit will be set up in Rodrigues under the chairmanship of the Chief Commissioner, and the Outer islands will also have local coordination committees. Technical assistance and capacity building is being provided to the local authorities, so that they are more prepared to take informed decisions in their respective regions in case of occurrence of extreme events.

Although environmental expenditures were hardly identified under DRR during the period 2011-2014, very important progress has been achieved in this field, with a NDRRM Centre now fully staffed and operational. A National Emergency Operation Command (NEOC), a multi-agency headed by the Commissioner of Police, will be activated in case of a crisis. It will operate under the National Crisis Committee, which is headed by the Minister of ESDDBM. DRR is definitely one of the adaptation sectors that the Government will need to give priority in the future, as extreme events are likely to become more frequent and more intense as global warming progresses.

Solid Waste Division. Solid waste management mainly involves the collection, transportation and disposal of municipal solid wastes, commercial wastes and industrial wastes. Mauritius, with a population of 1.3 million generates about 1,200 tons of wastes daily. The current system of solid waste management, which is managed by the Solid Waste Management Division of the Ministry, comprises the Mare Chicose Sanitary Landfill, five transfer stations located across the island, and waste collection services provided mainly by Local Authorities.

Government spends around Rs 1 billion annually on waste management, including waste collection, operation and maintenance of transfer stations and transportation of wastes to landfill, and, operation and maintenance of the landfill site. The Local Authorities altogether spend over Rs 500 million annually on waste collection services in their respective administrative areas.

Major projects include an increase in capacity at Mare Chicose landfill, which has a gas- to- energy plant to recover energy from wastes, and the operation of a large scale privately owned composting plant to divert waste from landfills to obtain environmental benefits. This resulted in about a 9 % diversion in 2014. In line with its zero waste targets, the Ministry is currently working on a new Resource Recovery and Recycling Strategy to achieve a recycling rate of 40% per year by 2020 and 80% by 2030.

Ministry of Energy and Public Utilities. The Ministry of Public Utilities is a key ministry for environmental and climate relevant expenditures, as it includes the Water Resources Unit and the Wastewater Management Authority, where the higher investments in water infrastructure projects are implemented.

The increase in expenditures associated with Prog 443 for the WRU, from Rs 855 m in 2011 to Rs 2.6 bn in 2014, reflects the importance of the water sector for the Government. Besides the Bagatelle Dam, major expenditures in 2014 relate to support to the CWA for projects such as the rehabilitation of Pailles water treatment plant (Rs 303 m), the Mont Ida Pipeline ((Rs 81.2 m) the Bagatelle Treatment Plant (Rs 65.8 m) and the reduction in non-revenue water in Upper Mare aux Vacoas system (Rs 62.5 m), amongst others.

Under the Sanitation programme, expenditures include loans to WMA for a number of wastewater infrastructure projects, amounting to some Rs 667 m in 2014. As the major Plaine Wilhems Sewerage Project is nearing completion, the urban corridor where about half of the population resides, would have a fully functional sanitation system. The next challenge will be the provision of a sanitation system for the other half of the population residing in rural areas, in order to ensure the long term protection of the aquifers.

The Energy Efficiency Management Office (EEMO), set up as a result of the Energy Efficiency Act of 2011, has a very important role to promote energy efficiency in all fields of the economy and the sensitization of the population at large, about the benefits that can be reaped. Valuable technical support and capacity building were obtained from the implementation of the UNDP-GEF project "Removal of Barriers to Energy efficiency in Mauritius". A continuation of this project's activities is being funded by the SIDSDock project. The expenditures for EEMO are accounted under Prog 442, previously used for Energy Services, which have now migrated to the MPILTS.

Examples of expenditures include the purchase of Electricity from Landfill Gas (MID Fund), amounting to Rs 20 m in 2012, 2013 and 2014, Feed in Tariff to Small IPPs (MID Fund) Rs 3.2 m in 2013 and Rs 15.8 m in 2014 and Energy Efficiency and Solar PV Projects (SIDSDock) amounting to Rs 7.3 m in 2013 and Rs 0.8 m in 2014. Although the expenditures are relatively small, the relevance for climate change is very high as the declared objective is to reduce GHGs through energy efficiency.

The CEB is an autonomous body that is under the aegis of the MEPU. While the production of electricity is predominantly fossil fuel based, there is an effort for the CEB to increase the production of renewables. This is in line with the Long Term Energy strategy of the Government, which has reiterated its commitment to increase the share of renewables to 35% by the year 2030.

The setting up of the SSDG scheme in 2011 provided incentives through feed in tariffs to small producers to set up renewable systems – mainly solar PV in practice. Under the GEF-UNDP project "Removal of Barriers to Solar PV in Mauritius", in 2014-15, studies have been funded to assess and recommend how the power grid can effectively absorb a higher share of renewables.

A windfarm project of 10 MW capacity at Plaine des Roches is becoming operational at the beginning of 2016, and 5 solar PV plants of 2 MW capacity each are expected to be operational by end of 2016, all funded by the private sector and benefitting partly for FIT from the GEF-UNDP project.

The CWA is also an autonomous organization under the MEPU, and is involved in the treatment and distribution of water in Mauritius. The capital projects in response to droughts (Rs 479 million) have been considered as medium relevance to climate change, whereas the operational expenditures related to water treatment and laboratory services, and water savings projects (Rs 614 Million) have been considered as marginally relevant to climate change.

Ministry of Agro-Industry and Food Security. The Ministry of Agro Industry and Food Security has the main mission of furthering development of agriculture and the promotion of agro industry focusing on safety, supply, quality, innovation and new technology through our service providing institutions and with stakeholders of the region. A number of key services are provided by the Ministry:

Agro-Industry includes activities related to production, storage and treatment of vegetable seeds and crops (sugar cane, potatoes, onion, garlic, fruits, tea, tobacco and vegetables). The activities are facilitated by the Food and Agricultural Research and Extension Institute (FAREI)) and the Agricultural Marketing Board (AMB), Agricultural Services, the Irrigation Authority and Mauritius Cane Industry Authority, among others. They all attempt to include elements of sustainability in their policies and practices.

The Livestock section includes services related to livestock (chicks and ducklings, feeds, milk, bee keeping and Veterinary Services). The Forestry Service has the mandate to manage the state land forests of Mauritius (except for Nature Parks) as per the Forest and Reserve Act of 1983. Their mandate also includes the management of Nature and Mountain Reserves. The Forestry Service is involved in the production and planting of 100,000 plants on a yearly basis and in the gradual phasing out of exotic trees in favor of natives.

The National Parks and Conservation Service (NPCS) is the local Government Institution which has the mandate to run and oversee local terrestrial conservation projects or initiatives. The NPCS is involved in the restoration of native forests through clearing of invasive and replanting of native plants. The NPCS is also actively involved in the conservation of endangered flora and fauna species.

The Food Technology Laboratory of the Agricultural Services department has the mandate to perform microbiological and chemical analysis of food, provide technical assistance on food quality and safety and develop new analytical techniques for food safety.

Ministry of Ocean Economy Marine Resources, Fisheries, Shipping and Outer Islands. The Mauritius Oceanography institute (MOI) has the mandate to survey and record ocean data around the Mauritian territories. The field of surveys cover all entrants into Mauritian waters including insurgence of aquifer water into the lagoons, their analysis, measurement of water qualities, identification of potential sites for aqua culture, potential sites for Energy Generation and also for Deep Ocean Water Applications. Responsibilities of MOI also include monitoring of sea rise through wave riders and seismic monitoring for plateau's movement and for forecasting Tsunami areas to be impacted under various scenarios.

Climate Change will negatively impact lagoons and the ecosystems prevailing in the lagoons. For example, sea grass and coral will be severely damaged and hence will negatively affect local fishing. The coral reef could be submerged and affected by coral bleaching and by severe current lading to damages and toppling of same, resulting in the coastline losing its primary protection against coastal erosion, salt water intrusion and flooding of coastal plains. In the fisheries division, the laboratories experiment on identification and definition of marine species; and work on the characterization of coral species to deal with coral bleaching and identification and propagation of coral specifies that are most resilient to climate change

In 2013, the Coral Reef Task Force (CRTF) was set up to coordinate work on the management of coral reefs by different stakeholders in Mauritius. The CRTF ensures that the roadmap for reef conservation and management elaborated during the Indian Ocean Commission Coral Reef workshop in February 2015 is implemented effectively at the national level.

The Blue Bay Marine Park Centre (BBMPC) has been constructed at a cost of Rs 32.5 m (spanning over 2013 to 2015), with a view to strengthening efforts for the effective management and monitoring of all the permissible activities therein. The BBMPC provides an insight on the purpose of the marine park and the rich biodiversity it harbors.

The co-funded UNDP/GEF/GOM/RRA Project "Partnerships for Marine Protected Areas in Mauritius and Rodrigues" was implemented to protect marine biodiversity through the establishment of collaborative management approaches to its Marine Protected Areas (MPAs). This project contributed to develop an enabling policy and institutional framework for the sustainable co-management of MPAs throughout the Republic of Mauritius, and to develop innovative co-management arrangements for MPAs, with a representative demonstrative site, through the South East Marine Protected Area (SEMPA) in Rodrigues.

The stocks of fishery resources in the lagoon of Mauritius are overexploited and may attain a dangerous level in the near future if no remedial action is taken urgently. In this context, the Ministry of Ocean Economy, Marine Resources, Fisheries, Shipping and Outer Islands is launched a marine ranching programme with prime objective to restock the lagoon, with a budget of about Rs 15.3 over the period 2011 to 2013.

The Fisheries Training and Extension Centre (FiTEC) provides training to fishermen and other stakeholders of the fishing industry to encourage effective and efficient fishing techniques and to empower fishermen to earn a better livelihood.